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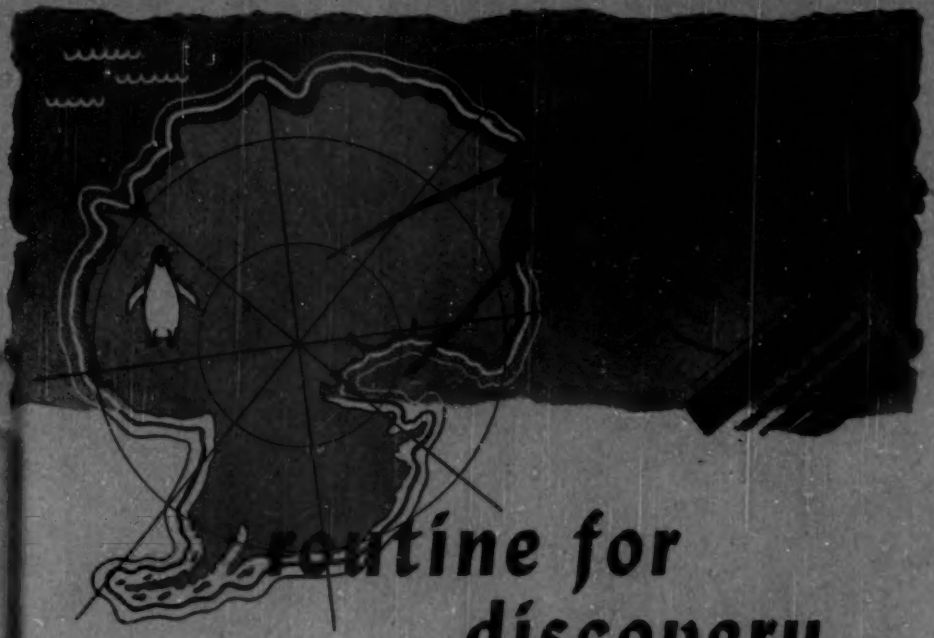

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(1) Joslin, E. P.: Postgraduate Med. 4:302 (Oct.) 1948. (2) Kemper, C. F.: Rocky Mountain M. J. 45:1092 (Dec.) 1948. (3) Pollack, H.: New York Med. 4:15 (Dec. 5) 1948.

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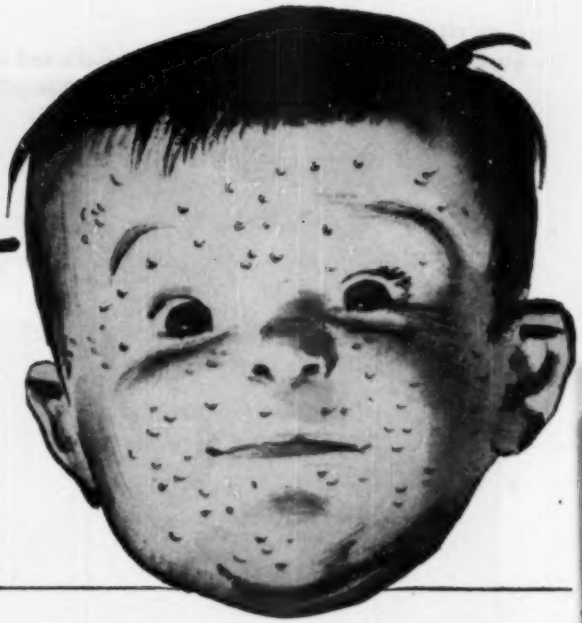

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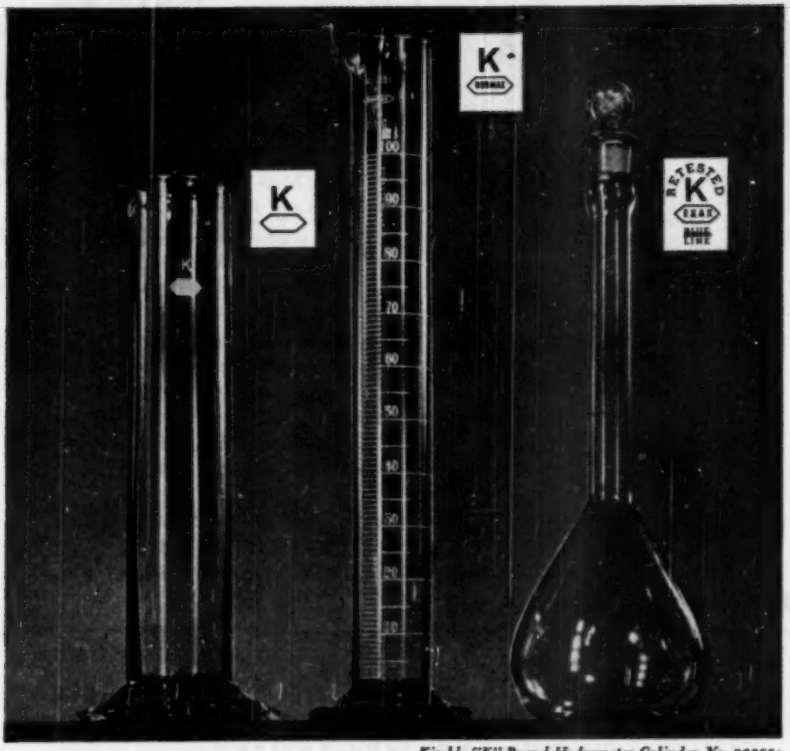

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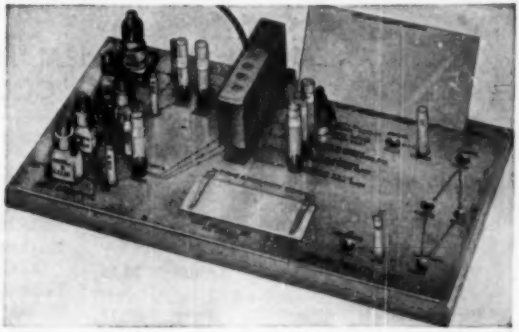

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2. "The Demonstration of Anti-Rh Agglutinins—An Accurate and Rapid Slide Test," Louis K. Diamond, M.D., Boston, Mass., and Neva M. Abelson, M.D., Philadelphia, Pa., Jl. of Laboratory and Clinical Medicine, Vol. 30, No. 3, March 1945.

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Section 1. Technique

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* 1. Cannon, A. Benson, and McRae, Marvin E.: Treatment of Scabies, J.A.M.A. *138*:557 (Oct. 23) 1948.

2. Wooldridge, W. E.: The Gamma Isomer of Hexachlorocyclohexane in the Treatment of Scabies, J. Invest. Dermat. *10*:363 (May) 1948.

3. Niedelman, M.L.: Treatment of Common Skin Diseases in Infants and Children, J. Pediat. *32*:566 (May) 1948.

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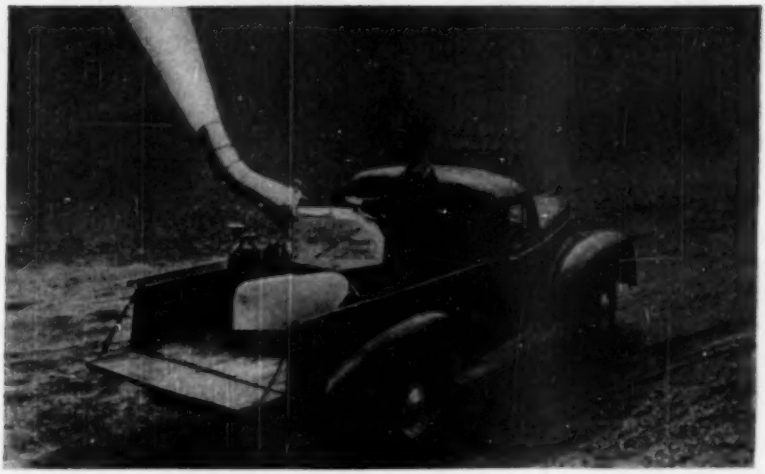

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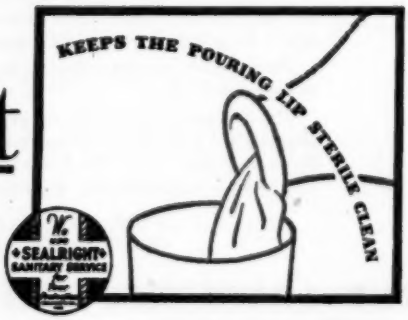

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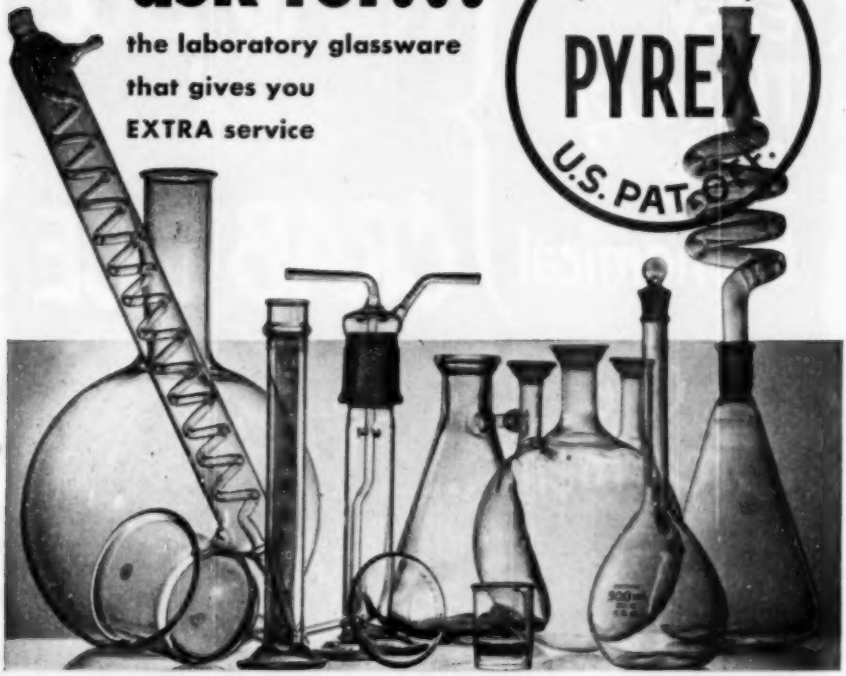

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Sugar, 1 teaspoon;	PHOSPHORUS.... 488 mg.	206 mg.
Toast (enriched, white), 2 slices;	IRON..... 3 mg.	1.6 mg.
Butter, 5 Gm. (about 1 teaspoon);	VITAMIN A..... 1074 I. U.	193 I. U.
Whole Milk, 8 fl. oz.	THIAMINE..... 0.52 mg.	0.17 mg.
	RIBOFLAVIN..... 0.87 mg.	0.24 mg.
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**Composite average of all breakfast cereals on dry weight basis.*

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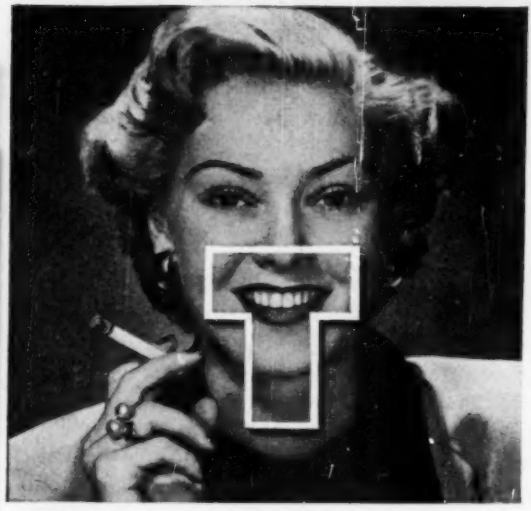

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(1) *F. L. Meleney. Surg., Gynec. & Obst. 86:760 (June), 1948*

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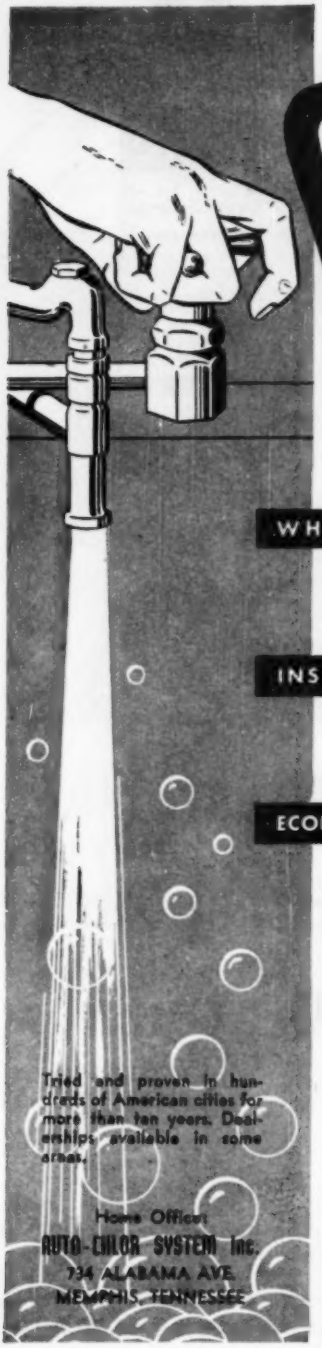

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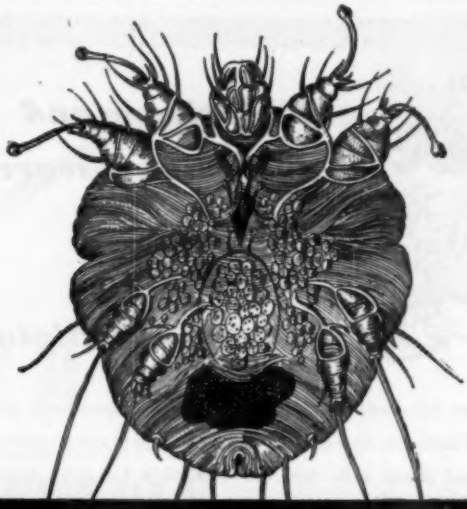

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1. Mackenzie, I. F.: Brit. M. J. 2:403, 1941.

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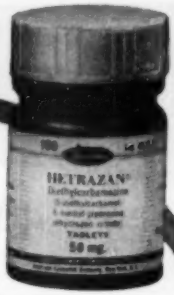

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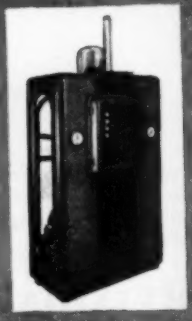

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American Journal of Public Health
and THE NATION'S HEALTH

Volume 39 March, 1949 Number 3

Anniversary Program—150th Year U. S. Public Health Service

The Past and Future of the Public Health Service *

LEONARD A. SCHEELE, M.D., F.A.P.H.A.
Surgeon General, U. S. Public Health Service, Washington, D. C.

THIS morning, 17,000 men and women of the Public Health Service turn their thoughts to this platform. From 44 of the 48 states, from Alaska, the Canal Zone, Hawaii, Puerto Rico, and the Virgin Islands, from headquarters in Washington, and from 14 foreign countries, we salute the American Public Health Association. And we say: "Thank you for honoring us in this special program to commemorate the 150th anniversary of the Public Health Service."

All of us feel that the Health Officers Section has provided an unusually fitting climax to our sesquicentennial. No professional society, no voluntary agency, is so closely related to the Public Health Service as the American Public Health Association. The two organizations are indeed blood relations, for each has fed the life-stream of the other since 1872 when the Association was organized with an officer of the Marine Hospital Service among its ten founders. Eight Presidents of the Association have been Public Health Service officers at the time they held office. Several others have been Service officers at some time in their careers.

As this memorable year draws to a close, then, the Public Health Service feels a special pride in being able to come before the Association with our storied past and our renewed faith in the future.

Coincidence places this commemorative meeting in a perfect setting. Boston is both the cradle of the Public Health Service and the birthplace of the modern public health movement in the United States. Here, in 1799, the first U. S. Marine Hospital opened its doors to sick and injured seamen. Here, too, in 1845, and again in 1850, Lemuel Shattuck wrote his classic reports which became the blueprint for American health organization.

The origins, growth, and development of the Public Health Service are well known, in broad outline, to most of this audience. This is fortunate, because a little mental arithmetic tells me that the time at my disposal allows about 40

* Presented before the Health Officers Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

seconds for each decade of our 150 years, and a few minutes for a look at the limitless future. Such a superficial account would not be satisfying either to the speaker or the audience, so I shall proceed quickly to the future.

First, let us look at our organization as it is today. Our financial situation—I will say this with Yankee caution—is "tol'able." In 1948, appropriations to the Public Health Service, including contract authorizations for construction, totalled over $200 million, and for this fiscal year, 1949, over $275 million. We have three new programs which are not covered by the 1949 budget: the National Heart Institute, the Dental Research Institute, and the program for water pollution control. We await the meeting of the new Congress for full activation of these programs. So I say our situation is "tol'able." Our 1948 and 1949 budgets, however, represent increases upward of 2,000 per cent over appropriations available 15 years ago.

In 1917, the Public Health Service had only 187 commissioned officers, all physicians, and less than 2,000 other employees. In 1940, the combined force included about 8,500 persons. Today, the total, full-time staff of the Service numbers 17,000, of whom 2,000 are officers in the regular and active reserve corps, now including physicians, dentists, engineers, sanitarians, pharmacists, nurses, and dieticians.

The programs of the Service are in three major categories: research, clinical medicine, and public health administration. Three major administrative units complement those categories: the National Institutes of Health, the Bureau of Medical Services, and the Bureau of State Services. The Office of the Surgeon General is presently a fourth bureau, composed of a few unrelated divisions and of the internal management services, such as budget and fiscal, personnel administration, and supply procurement.

Here is a point at which we can take a look at the future. One of my first concerns as Surgeon General is to improve the efficiency of the Public Health Service. The expanding magnitude of our responsibilities demands it.

Six months ago, I appointed a Committee on Organization, composed of members of my staff,* to make a comprehensive study of the organizational structure and working relationships of the Public Health Service, at headquarters and in the field. The committee, under the chairmanship of Deputy Surgeon General W. Palmer Dearing, has worked throughout the summer with the help of many other members of the Service in the various bureaus. They have come up with a series of initial reports which I regard as statesmanlike—reports dealing with general principles of organization and with the committee's first area of inquiry—federal-state activities.

COÖRDINATION OF SERVICES

It is too early to report here the outcome of the committee's specific recommendations. But I can tell you that already the Public Health Service is moving *away* from a categorical approach in all of its activities, and *toward* a more generalized and unified approach.

That trend will be accelerated in the immediate future, and its scope will be broadened. In research, clinical practice, and public health administration, we cannot—and do not—deny the vital importance of specialization. But we do—and we must—abhor the isolation of special knowledge, skills, and services in water-tight compartments.

The end result of isolation can only

* Public Health Service Committee on Organization: W. Palmer Dearing, Deputy Surgeon General, Chairman; Harry G. Hanson, Executive Officer, Secretary; J. W. Mountin, Assistant Surgeon General, Bureau of State Services; Mark D. Hollis, Assistant Surgeon General, Sanitary Engineering; R. W. Bunch, Administrative Officer, Bureau of Medical Services; A. F. Siepert, Executive Officer, National Institutes of Health.

be stultifying, whether it occurs horizontally across the three major types of activity, or vertically through the scientific disciplines, the medical specialties, or the categorical health programs. The scope and depth of human knowledge, the infinite variety of special technics are such that no one mind, nor group of minds, can encompass them.

But recognition of this fundamental truth is not enough. It is easy to philosophize and say that all the disciplines and services related to the health of mankind are interdependent. Somewhere, sometime, a start must be made toward an interdisciplinary, integrated approach in all agencies responsible to society for the study and health care of the people.

The Public Health Service, then, is putting its house in order so that we may use fully and more effectively the increased resources provided by Congress for the health of the people. Needless to say, we shall act within the framework defined by the Congress; but we shall seek legislation to authorize any basic changes which we believe to be necessary for efficient administration.

This does not mean a lessened interest in the pioneer work that must be done against the major health problems of our times. Quite the reverse; our plans are to strengthen and sharpen the attack already begun against such massive problems as heart disease, cancer, and mental disease. Other specific problems of the times also await attention. Our interest is in perfecting the Public Health Service administrative machinery through which the objectives of all our programs are reached.

Simply, what we are aiming toward, is to make of our large, sprawling organization a hard-driving, united team. The Public Health Service has grown, programs and separate units have multiplied so rapidly in the past 10 years that there has not been time to prevent a somewhat unbalanced development.

We believe that the collaborating team is the best instrument for the pursuit of knowledge and the provision of health services. Because this is our belief and because we hope to see it adopted throughout the whole structure of research, clinical practice, and public health administration in the United States, we must, perforce, heed those simple words of advice: "Physician, heal thyself." This we propose to do.

LOCAL HEALTH SERVICES

There is one motivating force behind the plans and hopes of the Public Health Service which transcends all special interests. It is a dream that dawned in the minds and hearts of public health workers about 40 years ago. That dream: a local health unit for every community in the United States.

There are men in this audience (some of them members of the Public Health Service) who have fought for that dream all those years, or throughout their professional lifetime. Many men have died without seeing this, their dream, come true. The vision and faith of these men have fertilized the entire field of organized health work for nearly two generations.

"Public health is indivisible," they have said. When the Social Security Act was passed in 1935, providing specifically for the development of local health services—but not for particular disease categories—those men thought the battle was at least half won. The Public Health Service, with its colleagues from the states and territories, supported these principles: Grants-in-aid should be general; the budget structure should be simple; there should be reasonable latitude for administrative discretion in the use of funds appropriated for public health work.

Since that time, the proponents of a generalized health program and full-time local health service have been

somewhat like the salmon—swimming upstream against the strong current of categorical appropriations and programs. They have kept on swimming. The goal is nearer, but it is still far off. That is to say, less than 5 per cent of the American people have fully staffed, well qualified, well supported health services. Although the goal is far from accomplishment, it must not remain far off in time.

Within the next year, an effective plan for insuring complete coverage with local health units must be put into operation. I am convinced that unless definite action is taken by state and local governments to increase organized health services to the people, we shall not be able to advance against the major causes of death and disability in the United States.

Public health work, indeed, seems to have arrived at the still center of human need. If it does not now adapt to contemporary needs, the hurricane of needless death and disease will sweep off in new directions, unchecked by the preventive methods which dynamic, coordinated health services could apply.

We already have evidence that the categorical programs themselves are still far from attaining their objectives, despite the money and effort devoted to them. The reason seems clear. In too many parts of the country, there is no qualified organization to bring the new, special services continuously and effectively, to the people. Even where all the health programs are unified administratively in the local health department, budgetary complications and conflicting lines of authority frequently hamper economical use of funds. These restrictions are even more seriously reflected in the quality of the service rendered to the public.

Additional legislation will be required to insure adequate federal support for local health units. There is a ceiling on Public Health Service appropriations for general grants-in-aid to the states. There are no cealings on such specialized programs as tuberculosis, venereal disease, and cancer control. But it may be that Congress, in the future, will take as a criterion for both general and special grants, the extent to which the states have organized and supported local health units in their jurisdiction.

The Congress and the federal agencies may well say to the states and communities: "It is your move." State aid to local jurisdictions falls far short of the needs. Many communities, on the other hand, do not take advantage of state laws and state aid already at their disposal. State aid to communities should be on the same basis on which federal aid is given to the states —that is, high quality consultative and technical assistance, liberal grants with wide administrative latitude for the local jurisdiction, and requirements for local participation, however small.

The Public Health Service will continue to demonstrate and stimulate expanded health services. We will request that the ceiling on grants for general health programs be removed. And we will support legislation for local health units if it is introduced in the next Congress, and if such action is in accord with the President's policy. In this entire effort, we have the full support of the Federal Security Administrator and our colleagues in the agency.

Last spring, I appeared before a Congressional committee in support of a bill for aid to local health units. Among the few civic organizations supporting the bill, the National Congress of Parents and Teachers bore the brunt of the battle. The State and Territorial Health Officers Association, the American Public Health Association, and the American Medical Association strongly endorsed the bill. Unfortunately, it could not compete successfully with other legislation. We can only

hope that the American people will demand passage of such a bill if one is introduced again, as surely it must be.

There is, indeed, no lack of moral support for full development of local health services. The organizations I have mentioned have been joined by other strong civic groups, such as the Farm Federation and the General Federation of Women's Clubs. More recently, some of the voluntary health agencies have begun to see the importance of the local health unit to their own programs.

Federal legislation, however, is not the only requirement for nation-wide local health services. State and local governments must take more responsibility. They must support the recommendations of their central health agencies for well planned, state-wide development of local units. State and local action, in fact, must be the spark plug for increased federal support.

All organizations must work with the public at state and local levels to get the comprehensive health services the people need. The federal government can only bear its share of the responsibility for leadership and help. The needs arise in the communities and the states. So must action arise in the communities and the states.

I suspect that the health officials, the professional and civic leaders, need to recapture some of the missionary spirit which 40 years ago inspired the pioneers. We, in the Public Health Service, have inherited that spirit from such rugged pioneers as Lumsden, Frost, Carter, and others. Many of us were trained by those men. We are still somewhat baffled to find that it is harder to "sell" legislative bodies on the idea of the local health unit than on attacking a particular disease. Some say that the local health unit lacks drama. No man who walked down the country roads with Lumsden 30 years ago would agree.

When Lumsden began his rural health campaign in 1914, our self-confessed "Shoe-leather Epidemiologist" sent his boys from house to house preaching the gospel of the sanitary privy. But his aim was what is now the Number 1 goal of public health: the modern, model, all-purpose local health unit. A unit adequately staffed with well trained physicians, public health nurses, health educators, sanitarians, technicians, and other needed specialists. A unit housed in a functional, good-looking building—the health center. A service, conveniently available to all citizens; working jointly (even under the same roof) with the local hospital and private physicians.

Lumsden's methods were as direct as his plan was far-reaching. You went into a county where the death rates were high and the flies thick. You went from house to house and explained to the families that typhoid, hookworm, and the "summer complaint" which killed their babies, came from their dilapidated backhouses. You showed them how and why a nice, fly-proof, sanitary privy would help protect their health. You persuaded them to rebuild. (Later, you went back—or Lumsden would want to know why you had not—to see whether they had done anything about it.) You gave lectures on sanitation—in churches and one-room school houses. You rounded up prominent citizens, and gave them an extra earful.

By the time you had finished this softening-up process, they were glad to invite you to survey their community and tell them what to do. Probably you already knew what should be done. But you made that survey with the same attention to detail, the same curiosity (for you might run across something unusual anytime), the same zest that filled you the day you decided to go into the Public Health Service.

The purpose? "The ultimate purpose," Lumsden wrote in 1916, "is to awaken in rural communities an indi-

vidual and communal interest in public health questions, which in turn will lead to an improvement in sanitary conditions and *the maintenance of an official local health agency.*" To this day, Lumsden's boys fondly recall that this purpose is what puts "the foolish glimmer in your eyes."

The Public Health Service could give little help for attaining that vision until 1936. For a few years after World War I, the Public Health Service had as much as *half a million dollars* to help interested states in developing local health work. But by 1928, the recession of public health work was on its way to the bottom. The Service that year had only $350,000 to spread among 204 counties in 17 states.

In that year, one of my distinguished predecessors, Dr. Hugh S. Cumming, revealed in a single sentence, the discouragement of health agencies throughout the country. "At the present rate of progress," the Surgeon General wrote, "about *fifty-one* years will be required before all the rural communities in the United States will be receiving adequate health service, the lack of which is responsible for an annual economic loss of one billion dollars."

Twenty of those 51 years are gone. This year, the Public Health Service dedicates itself to cutting that predicted time lag by at least 25 years. We must attain complete coverage of the country in the next 5 years. It would be ironical indeed if the richest nation in the world should take longer than a generation to complete a task so well begun, and so vital to the well-being of its people.

COMPREHENSIVE, MAXIMUM SERVICES

The public health agencies and professions need to take a broader view of the services required in our communities. What would have been the outcome if, say 10 or 20 years ago, the official health agencies and professional societies had broadened their concept of a local health unit's functions? That question perhaps can never be answered. But it may not be far from an accurate surmise that the current imbalance in many public health programs is a direct result of the "minimum service" point of view.

The need for the so-called "basic services" cannot be denied. But they are not enough, and they have never been enough. As nature abhors a vacuum, the voluntary agencies rose naturally. They rose from the American people and the American drive to get things done, to fill vacuums left by traditional and inadequate public health programs.

May there always be voluntary agencies to spearhead needed action! May there never come a time when only official agencies are active for the people's health! No thoughtful health officer can overlook the significance of these popular movements, devoted to the cause of particular population groups or to the conquest of a particular disease. In each instance, the public health programs had failed to give that problem the attention it deserved. Voluntary effort must always be welcomed and fostered in our country.

In this Atomic Age, full preservation of our man power is vital to the very existence of democracy in the world. Neither state, local, or federal governments, nor voluntary agencies, nor professional organizations, nor the people themselves, can afford to shirk their full responsibility to work together for higher levels of health.

I spoke earlier of the present interest of the Public Health Service in simplifying the administration of grants-in-aid to the states. It must be clearly understood that our ability to do so will depend on evidence in the state plans that the states accept their responsibility to carry forward the attack on inadequate health services of all types.

We expect the special programs, stimulated by federal support, to be pressed with greater vigor.

Moreover, there are many fields, clearly within the province of public health work, in which the states should pioneer without the stimulus of "categorical" appropriations by Congress. Housing, for example, holds first rank in social problems of today. Despite the distinguished studies made by the American Public Health Association under Dr. Winslow's direction, healthful housing has had almost no attention by official health agencies.

The relation of housing to the spread of communicable diseases is too well known to merit discussion here. The amazing point is that the problem is so well known, and that so little is done about it. The effects of poor housing on mental health can only be surmised; but we cannot ignore, as indices, the rising rates of juvenile delinquency, divorce, and violent death in familial situations. Home accidents, too, rank high as a cause of death and disability. Public health agencies, it seems to me, can no longer ignore the problem of housing.

The Public Health Service began a few weeks ago to assume its responsibility in this field. Our engineers are working with the various federal agencies concerned with housing to define the areas of health interest in the total problem. We expect them to come up with recommendations for public health action. The state health agencies also should give more attention to the housing problem in their jurisdiction. The United States can no longer afford to tolerate, for example, the woeful conditions in many of the "fringe areas" beyond the corporate limits of our populous cities, often beyond the protection of municipal sanitary and construction codes.

I mention housing as an example of problems which exist or may arise, and which should be given attention in current public health programs. There are, of course, many other important services, partially developed or neglected. My purpose is to stretch the minds of public health workers to a realization that theirs is a dynamic job; that they never can be satisfied with what *has* been done, or even with what *is* being done. Our satisfaction can be only in keeping a perpetual vigil over the needs of the people we serve, alert to new problems and new methods.

The local health unit is an ideal instrument only so long as it is flexible; ready to take the leadership in introducing new programs; ready to follow the lead of the community it serves, demonstrating the peculiar genius of the American people to accomplish their social aims by the coöperation of governmental and voluntary agencies.

TRAINING OF PUBLIC HEALTH PERSONNEL

The ideal local health unit will remain a dream so long as the men and women who serve in it lack the training they need. Estimates made by the National Health Assembly last May show that training is needed for at least 60,000 persons in order to provide minimum staffs for nation-wide health units.

The concept of formal training for public health work took shape only 30 years ago, when the first graduate school of public health was established. Others followed rapidly, but even today there are only 9 accredited schools of public health in the United States. A new one, as most of you know, is being developed in the University of Pittsburgh by former Surgeon General Thomas Parran.

During the past 3 years, the Public Health Service has developed a comprehensive program for inservice training of its own professional personnel in research, clinical, and public health

branches. Likewise, we have been able to help the professional schools to expand their research and training programs in the special fields of cancer and psychiatry. Under the new programs for dental research and heart research, we shall be able to give similar assistance in these special fields. As yet, however, we have been unable to give general assistance to the professional schools.

The Public Health Service proposes to expand its training program for its own employees to the limits of its legal authority. Our task would be made easier if the young doctors, dentists, and nurses who come to us from their basic training had been better indoctrinated in the principles and practice of preventive medicine during their undergraduate days.

As the field of public health widens, the variety of special knowledge and skills increases. On-the-job training and inservice training are needed in every area, in order to keep staffs up-to-date. Too few state health agencies have developed the type of training program which will improve their chances for recruiting competent workers and increase the efficiency of existent staffs. The state health departments which have developed comprehensive training programs are benefiting to an extent far in excess of the expense and effort involved.

The total problem of professional education requires both study and action. A series of Acts of Congress, beginning in 1945, has given the Public Health Service an increasingly heavy responsibility and broad authority to augment medical research generally, and training in special fields. Our advisory councils, who must study and recommend the approval of grants to outside institutions, have felt the need of objective data as a basis for their policies and actions in this field.

About two weeks ago, the National Advisory Health Council recommended that the Public Health Service undertake a thorough study of its research and educational grants and fellowships programs, including the costs of medical education. "One of the chief purposes of this study," the Council reported, "is to determine whether present Public Health Service programs or other methods may be recommended for the improvement and extension of medical education."

By assembling data on the costs of teaching facilities in relation to the total costs of medical education, the Council hopes to be able to evaluate the effect of the grants programs on medical school finance and on medical education. The Council further recommended that a special committee be appointed to develop the study. We are hopeful that the study will provide a basis for similar analysis of other branches of professional education in which the Public Health Service has a specific interest.

The broad functions of the Public Health Service, obviously, give us an interest both in basic training of the major professional groups, and also in their graduate work. At times in the past, I believe that our colleagues, and even some of our own officers, have forgotten that when, in 1912, the 62nd Congress gave us our definitive title, the Public Health Service, it did not exclude—but specifically included—our medical care programs. There has never been a time in our 150 years of existence when the Service was not the major federal agency for civilian health. This was true when the Service was a handful of locally operated hospitals for sick and disabled seamen, as it is true today. The difference in functions is one of perspective, not of haphazard addition of responsibilities.

Our first hospitals are among the oldest general hospitals in the United States. The Boston Marine Hospital, for example, is the fourth oldest in the

country, preceded only by the Pennsylvania Hospital in Philadelphia, the New York Hospital (now Bellevue), and Charity Hospital in New Orleans.

Very early in its existence, the Marine Hospital Service had a close relationship with medical faculties and the training of physicians. As early as 1804, the Boston Marine Hospital became the first teaching hospital of Harvard Medical College, through the efforts of one of the giants of American medicine—Benjamin Waterhouse. Dr. Waterhouse was on the original faculty of the medical school, and served as physician-in-charge of the Marine Hospital for 4 years. He was among the first medical educators to realize the inadequacy of the didactic instruction and apprenticeship of those days. The Boston Marine Hospital was the scene of his experiments in applying new European methods of hospital administration and professional training. Waterhouse is also remembered as the physician who introduced vaccination in the United States.

I have dwelt upon some of these early activities because we sometimes overlook the close relation of the beginnings of preventive medicine and hospital care to public health. It is common to set the origin of the public health movement in the great sanitary reforms of the latter half of the 19th century. The importance of sanitation, and its place in the foundation of the public health structure, cannot be—and is not—disputed. In the light of modern knowledge and modern concepts, however, we are coming to see that "public health" is not and never has been a thing-in-itself, but a part of a larger whole: man's social effort for the conquest of disease and the attainment of health.

Such a concept includes the achievements of clinical medicine, the professional schools, the private hospitals, as well as the achievements of public agencies in the field of medical care. It includes the whole history of medical research in this country, a field in which state health agencies should be much more active. And, of course, the total concept of public health includes all those collective efforts by official and nonofficial agencies to apply preventive measures for the protection of all the people.

By some insight, conscious or dimly sensed, the people of the United States through their Congresses have maintained in the Public Health Service that unity of functions—research, clinical medicine, and public health administration—which constitutes the public health movement of today. There may have been times in our history when the Service has not been conspicuous for the excellence of its performance in all of these fields; but I think it is right to say, those times have been few.

Since 1939, the Public Health Service has been a constituent unit of the Federal Security Agency. That shift placed the Service where it could best grow and develop to fulfil its destiny; that is, it placed the major health agency in close administrative relation with the educational and public welfare programs of the government. The health policy of the United States Government, as represented by Congressional Acts and the work of the Public Health Service, the Children's Bureau, and related programs, has never been partisan, nor even bipartisan. It is non-partisan. We of the Public Health Service and our federal colleagues are going to do all in our power to keep it that way.

The Public Health Service is a public servant. Each member of our team is proud to name our calling. We take this role to mean that we do the chores assigned to us by the people of the United States. But it is no "hired man's" job. To us, it is a task calling for an incredible variety of skills, abilities, and knowledge; a task calling for

creative thinking of a high order. It calls also for leadership, rather than routine obedience. Unless we can bring these qualifications to the job of public servant, we cannot discharge its responsibility with the moral and intellectual integrity it demands. The job also offers limitless possibilities for satisfying work with colleagues in scores of professions, hundreds of institutions and health agencies. Collaboration in man's great quest for health is, to our way of thinking, the highest human indeavor.

We expect to go on serving in that capacity with the same good, self-imposed discipline and integrity which our professions and our predecessors in the Service have taught us. The Public Health Service has one sole interest: *to do* and *to be* only what is best for the health of the people. As in the past, we await their orders.

Canada Acknowledges A.P.H.A. Resolution on National Health Program

The following letter has been received from Paul Martin, Minister of National Health and Welfare of Canada in reference to Resolution 21 adopted by the Association and published in January *Journal*.

"I wish to express to you and to the members of the Governing Council of the American Public Health Association my thanks for the very encouraging resolution relating to our new National Health Programme which was adopted at the recent annual meeting in Boston.

"We are convinced, of course, that the programme is of great significance and promises possibilities for tremendous developments in the health field of this country. I believe we have an opportunity to do really helpful things for our people. Naturally that is my first concern. However in addition and possibly in the long run just as fruitful, there is a wonderful opportunity for new thinking, new projects, and significant developments in health work. Such possibilities naturally are most intriguing and challenging.

"It is in this latter connection that I wish to tell you how much we in this country value the very fine relationships which our health officers enjoy with those of the United States. This is true not only of individual workers, but, also of great voluntary organizations such as your Association and of government officials at all levels. The hospitable way in which we are always received in the United States and the generosity with which advice and information are always tendered is a matter of great pride and satisfaction to us. I know quite well that this spirit of coöperation and this helpful collaboration will contribute much to the maximum development of our new programme.

"Again may I express our gratitude for the resolution. I hope you will find it possible to convey this message to the members of the Council."

Anniversary Program—150th Year, U. S. Public Health Service

Training of Health Man Power *

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IT is a privilege to speak at this meeting which is devoted to commemorating the one hundred and fiftieth anniversary of the U. S. Public Health Service. All of us who have been working actively with the Service during the period of its greatest growth and are now sharing in its efforts to make public health mean the health of the public, take great pleasure in its past developments and in the prospects ahead. This rapid growth has brought to the fore the fact that our present programs and those that we envision for the future cannot be successful unless we make more adequate provisions for developing the necessary personnel. It is therefore appropriate that someone should discuss the topic assigned to me today.

As in the case of all large-scale social movements, our problem is that of providing the staff of workers needed for the task, and this involves not merely the setting up of the mechanisms for appropriate training but also the more difficult one of recruiting the individuals to be trained. I shall, therefore, discuss both phases of this question and suggest certain possible solutions.

As an approach to the subject, we might review briefly past approaches to the problems of recruitment and training and the present status of such efforts.

During the early stages of the public health movement, programs were left to some public-spirited individual, usually a doctor who, on the basis of such training as he had had, served as health officer. The subordinate personnel, if there were any, had no specific training. Among the early approaches to education directed expressly at public health, stands the London School of Tropical Medicine, by means of which England undertook the training of medical officers for the colonies. Although these men were called medical officers, their activities were primarily in public health, and in this effort we see a deliberate attempt at health officer training. A more unique approach to the matter was the early school at the Massachusetts Institute of Technology where, under the stimulus of Sedgwick and Whipple, the disciplines of biology and engineering were united in an approach to health matters. The emphasis here was on the sanitary aspects of public health work, that being the most important problem of that time. A number of the people now active in public health work are products of that school and of that stimulus.

As the scope of public health increased, the need for giving more specific public health training to physicians became apparent. The result was the setting up of training centers in public health, either as independent schools or as departments within medical schools. In either case, efforts were mainly devoted to the developing of appropriate

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training for health officers under the concept that had been growing within this country that health officers should be graduates of medicine. These schools, however, did not limit themselves to the training of health officers but immediately started to develop training opportunities for the variety of specialists other than doctors of medicine. As a result, we now have graduate training opportunities for such classes of public health specialists as bacteriologists, parasitologists, epidemiologists, statisticians, sanitary engineers, industrial hygienists, nutritionists, public health educators, specialists in the public health aspects of tuberculosis, venereal diseases, maternal and infancy hygiene, and in many other fields.

The teaching centers offering these varieties of training have been organized into a system of approved schools of public health, which provides for a certain unification of the educational efforts without impeding the development of new courses of study. The addition of new schools, such as the one recently announced at the University of Pittsburgh, and the initiation of new interests in the schools already established, assures us, I believe, that we shall have reasonable coverage in so far as graduate and postgraduate training is concerned.

In this educational movement, however, there is an inherent weakness, in that we have set up a graduate pattern without making the necessary provision for the flow of personnel from the lower programs of education into this graduate field. Looking back, it is easy to see that the mistake was a natural one, for so much of the thought thirty years ago was concerned with the question of training medical men to be health officers that the educational flow was assumed to be that of a premedical course, training in medicine, and then graduate work in public health. The problem of new recruitment was supposed to be that of stimulating medical men to take this training and to encourage this result; courses in preventive medicine were introduced in the medical schools. This approach to the problem overlooked the need for revealing to young men and women interested in fields other than medicine the opportunities that existed for them in the area of public health. Movements in this direction were made through the establishment of courses in public health at the college level. Unfortunately, however, in the period of intense interest in developing graduate schools, there was a tendency—conscious or unconscious—to frown on these efforts at the undergraduate level, and progress along these lines has not been what it should have been during the past generation.

In a talk given to a similar audience a year ago, I called attention to the fact that the shortage of personnel apparent in so many of the activities of society is not, as a great many people assume, a product of the war, but is rather a result of the fact that the man power demands of our highly industrialized society and of our expanding social programs exceed the supply in our present population. Competition for the brains and abilities of young people will be more intense in the generation to come than it has ever been. There is no way for the field of public health to face this competition except through the development of an interest in public health on the part of our young people at college and at high school levels.

Looking at medical education, we see that here we were forced to establish, on a systematic basis, premedical courses for the man going into medicine. Without the establishment of such courses we would not have had, and would not now have, the flow of well qualified young people into the field of medicine that is needed to keep up our supply of physicians. It is my opinion that the creation along similar lines of a "pre-

publichealth" course offers one of the most important approaches to our problem of recruitment and training. It would be desirable for the agencies that do the broad planning for public health, that is, the American Public Health Association, the U. S. Public Health Service, the Association of State and Territorial Health Officers, and the schools of public health, to consider seriously an organized approach to undergraduate training in public health.

It is well known to all of you that certain universities do offer such training, but the movement has none of the stability and force that has been achieved in the graduate program. We almost seem to be building an army of generals in public health without the necessary soldiers.

I cannot leave this subject without presenting some of my concepts with regard to this undergraduate course. I believe that it should be, in so far as possible, a unified course for the wide variety of people going into the field of public health, and should not be framed in such a way as to encourage too early specialization. There are certain basic disciplines at the collegiate level that all persons should cover if they expect to carve out a real career along the lines of any one of the numerous activities embraced under the title "public health."

In general, the four years of collegiate training should include specific courses in the natural sciences including mathematics, in the social sciences, in psychology, and in those general cultural subjects that all college students are encouraged to include in their curriculum.

The case for the natural sciences is clear. The public health movement is so firmly based on scientific findings that no young person should be encouraged to enter the field of public health without a fairly substantial training in the sciences at the collegiate level.

Neither is there any argument with regard to the social sciences; public health being a social activity, students should take specific courses in this field. I should include within this group, not merely the usual courses that one thinks of under the heading of social science, but I should like to see developed a course in what might be called "social economics"; also a course in geography which would embrace training with regard to human populations and the relationship of these populations to their environments and their natural resources, since knowledge of these factors is basic to public health work.

A course in psychology is desirable because so much of the work in public health has to do with the question of human relations, and a general course in this field can furnish an excellent basis for an understanding of some of these forces.

The remainder of the 4 year course would be, as previously stated, filled in with general cultural subjects.

If properly developed, graduates from such a course would not be debarred from entering the field of medicine, even though they had not taken a premedical course. This would be a desirable thing because our present training program in medicine demands a rather early decision on the part of our young people as to whether or not they wish to enter medicine. We thereby tend to lose certain excellent individuals from medicine that we might have available if their training in the type of course described were such as to enable them to make the decision to go into medicine at some time toward the end of their collegiate career.

Graduates of such a "pre-publichealth" course would be suitable material for the numerous public health positions at the technical level below that of heads of departments and divisions. But more important than that, this course would provide a steady flow of young

people stimulated to thinking about public health and to developing careers in this field, and from this group we might expect to get the wider variety and the increasing number of graduate students that the future of public health demands.

Another opportunity for training in the field of public health which offers a good deal of promise, is that of inservice training. Various approaches to this problem have been made and in the past a great deal of pressure has been put on the schools of public health to develop such training as an active part of their own program. I should like to say that I believe this to be a mistake. Sound inservice training programs can best be provided by the operating agencies in public health. The schools should be expected to supply lecturers for such programs, and to coöperate with the plan in other ways, but I believe that it should not be left to the schools to take the initiative here. I should like to see all of the larger health departments add a person to their staffs whose function would be that of education. Their return for the support of such an individual would be the improvement of their personnel within all lines of departmental activities. Certain health departments have done this to some degree, and in every case that I know of, it has borne fruit.

One final area for training in the field of public health that should not be overlooked is that of education of the public itself. In the days when the public health movement was small, this was relatively unimportant, but now that we are engaged in a full-fledged social program, it becomes increasingly important that the public be constantly educated as to the meaning and the objectives of public health. In this, the public health educator is an important person. His functions, however, are not very clearly defined because the field of public health has no real program for education of the public. It would be wise therefore to leave the training of public health educators in a fluid state until more experiments in this type of education have been conducted.

With regard to our approach to the problem of training the public, it would be well to note the movement in relationship to the public school system that has resulted in the organization of Parent-Teachers Associations. We need similar public organizations in the field of public health. No one has yet proposed a plan under which these might be developed, and in many cases the health officer has had a tendency to discourage active interest in his problem on the part of community groups. The fact that the public will take an active interest in health problems is clearly indicated by a variety of minor specific instances; one that has attracted my attention recently was the eagerness with which people in different blocks in the City of Baltimore were willing to form teams in a program for cleaning up the rats of the city.

The fact that general interest in public health can be awakened around specific needs, such as poliomyelitis, heart disease, tuberculosis, cancer, etc., has led to the growth of powerful public organizations in these fields. These groups benefit from the fact that they are devoted to specific problems, but this fact is also a weakness in our development of a balanced health program. Perhaps the one general field that the population of this country has shown an interest in getting behind is that of "medical care." If we can maintain this concept on a broad basis, it might be made the keynote for an approach to the education of the public in health matters. At any rate, there is an opportunity for leadership in public health to furnish the people of the country with additional outlets for their energies and interests in health problems. When we have such an outlet on a comprehensive rather than a specific

basis, our program of education of the population in general with regard to public health will be a simple one and the field of action of the health educator will be clarified.

I have painted a rather sweeping picture of training in public health. I have done this deliberately because I feel that at a meeting such as this, where we are celebrating the anniversary of the organization that is set up to supply leadership, it would be well to take a broad point of view. I feel confident that the future will see developed many of the areas that I have discussed here and indeed many others that I have failed to mention, and in all these new movements the stimulus and leadership of the U. S. Public Health Service will play an important part.

Problems of Training of Professional Public Health Workers

A meeting, called by the Federal Security Administrator, which dealt with the necessity of training large numbers of professional public health workers, was held in Washington, D. C., on January 8, 1949. Participants at the meeting were members of the staff of the Federal Security Agency (inclusive of officers of the U. S. Public Health Service), deans and faculty members of schools of public health, and the Chairman of the Executive Board of the American Public Health Association.

Questions discussed were:

1. How much would the average annual training load have to be increased if future public health needs are to be met, and what proportion of the total average training load should be carried in the graduate programs of accredited schools of public health?

2. How would an increase in enrollment in the schools of public health affect the financial plight of the schools and what consequences might result if financial assistance were not extended to schools of public health?

3. What formula for federal aid to schools of public health should be devised (a. black grant; b. capitation; c. construction)?

4. Since most public health workers prepare themselves for governmental positions not offering liberal remuneration, can recruitment for training be expected to be successful unless financial assistance is offered to the students?

5. What formula for direct aid to the students appears most appropriate (loans, scholarships, tuition, travel, stipend, grant)?

6. With changing horizons in public health, how should the present curricula of the schools be modified?

It was agreed that during the next 10 years, an annual average of nearly 7,600 professional public health workers in the following categories must be trained: physicians, nurses, engineers and other sanitation personnel, dentists, health educators, laboratory workers, hospital and medical care administrators, nutritionists, and statisticians. It was further agreed that 29 per cent of the total number of 7,591 should be trained in the graduate programs of schools of public health (accredited by the American Public Health Association). The participants also approved formulae for aid to the schools and for the amount of fellowships to the various professional groups of public health trainees.

Anniversary Program—150th Year, U. S. Public Health Service

A National Health Program—What the Public Expects, and How to Organize It *

AGNES MEYER
Washington Post, Washington, D. C.

NONE of our federal agencies deserves the commendation and gratitude of the American people more than the U. S. Public Health Service. My respect for its contribution to the nation's stability was acquired during the war. As I studied the social chaos that prevailed in all of our major production centers, the field men of the U. S. Public Health Service, under the wise leadership of Dr. Parran, seemed to be the only people who knew exactly what they were to do and how to do it. What I admired most about their outstanding achievements was the effectiveness with which this federal agency worked with state and local governments, with voluntary organizations, and with the numerous Army and Navy officials. The decentralized administrative policies of the U. S. Public Health Service are, in fact, the best example we possess that federal leadership of state and local endeavor can be achieved without federal domination.

In planning for a national health program, nothing is more important than the preservation of this thoroughly American tradition of federal, state, and community coöperation, if our country is to remain a republic. The battle over the organization of a nation-wide health program has been so violent because its solution will go to the roots of our existence as a nation of free men. What we must try to achieve is health not only of the individual but of society itself. Democratic ends demand democratic means for their realization. Our people must face the fact that if they want truly civilized, humane, and serviceable institutions, if they want health in its widest aspects, mental, physical, moral, and even political, then they must achieve it in their own good way. Assuredly they will have lost their most cherished characteristics—their individualism, independence, and freedom—if they meekly allow the experts to set the patterns for their thinking. They must make their own institutions, or their institutions will make them. Therefore, this problem of nation-wide health programs is a question on which every responsible citizen must take a stand, for the answer to it will affect the whole destiny of our nation.

Yet the medical groups who seem to think they are defending individualism and freedom when they blindly oppose every coöperative endeavor of the lay public, must realize that we have a mass health problem on our hands and the mass of the people want action. And action there will be, whether right or wrong. The election results are clear proof of this. As a Republican who testified fruitlessly before the 80th Congress on behalf of various welfare measures,

* Presented before the Health Officers Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

I am convinced that the overwhelming Republican defeat was due mostly to the obstruction of social progress by the House leadership. I hope the American Medical Association will take the lesson to heart. At present the people still look to the medical profession and to you public health workers for guidance and leadership out of their confusion, but whether they get it or not, they will not be denied the elementary rights to which they feel every American citizen is entitled.

It is essential that the public should be informed on the actual progress toward sound public health planning that already exists in many of our states, and on a nation-wide scale. Many people who advocate a revolutionary, over-centralized, federally dominated organization for health protection, do so only because they see no other alternatives. Therefore, the best service I can render here is to outline our most constructive experiments toward a national health program as well as it can be done in a few minutes.

Since health is a function of the community's total way of life, the furtherance of health is dependent in our democratic nation upon local initiative, support and participation of the entire community. It is also dependent upon such closely related factors as education, housing, nutrition, and a basic standard of living. Therefore the first step toward dynamic planning for health is the formation of state and local citizens' councils wherever they do not already exist, to serve as the conscience of the community on all matters of the general welfare.

These councils should bring together lay and professional groups and individuals for the study and solution of their health problems, and for the correlation of all services affecting health. These councils should be appointed by the governor or mayor if their reports are to carry weight with officialdom and with the people. They should join forces with local health departments and with the state hospital authorities appointed by the governors under Public Law 725. This would be the quickest way to achieve coöperation between public and private endeavor and the surest method of eliminating the hostility between the expert and the civic leader that is now one of our chief handicaps toward social progress. These councils should gather factual data to establish existing health needs, and develop methods for the effective implementation of planning.

Only by the encouragement of this grass-roots movement, only through intimate face to face associations and the satisfaction to be derived from a sense of sharing in creative activity, can we control the frightful impersonality of centrifugal forces and get the necessary impetus behind a sound national health program. At the same time our people would realize the difficulties involved in the organization, administration, and financing of a national health program that will be effective, while remaining responsive to changing community needs and to the scientific progress of medical care. The utopian promises of compulsory national health insurance have lead some of our people to think that all we need is federal legislation to implement it and, presto, every medical need will be met. Advocates of the Murray-Wagner-Dingell Bill should never lose sight of the hard truth that a national compulsory insurance program supplies merely organization and money, but does not supply hospitals, doctors, nurses, dentists, and other essential personnel. If our citizens learn by direct participation in planning for their own health that the problem is closely enmeshed with their daily lives and with the availability of local facilities, they will be sure to reject authoritarian over-centralized plans that might destroy the very aims they seek.

Since local health departments meeting minimum standards are now available to no more than one-third of the country, these citizens' councils should demand that this basic service be made available to all the people without delay. Dr. Haven Emerson asserts that "not more than 4 or 5 per cent of our people are today receiving a local public health service that measures up to the simplest demands of science and to an art of preventive medicine which our state of general culture has a right to expect." He estimates that about 1,200 such local health departments staffed with qualified persons would suffice to cover our entire continental population instead of some 18,000 now operating under frequently inferior conditions of personnel, and serving but 67 per cent of the population. We must insist upon the total coverage of our people by local health units capable of putting the science of preventive medicine to work for the whole social structure. There is not a single goal, whether in the field of public health service, of medical care, of nutrition, of education in health, that can function until we achieve these health departments in each community.

Dr. Emerson estimates that between 55,000 and 60,000 employees will be required to staff these 1,200 local health departments in order to give the minimum health service to all the people.

That means the immediate recruiting and training of skilled people in adequate numbers. It will also take legislation on local, state, and federal levels to finance the program. A bill to help the states finance these local health units on a matching basis was introduced in the last Congress. Most of our states can and should finance their own health departments. Yet federal aid will certainly be needed in some twelve of our less productive states.

What we need to determine the financial responsibility in this and all other welfare programs, is a clarification of the administrative and tax relationship between the federal, state, and local governments. If we do not hasten to clarify these relationships, we shall find it very difficult if not impossible to do so in the future. For we shall find ourselves too deeply committed to overcentralization and a top-heavy bureaucracy, simply because the taxing power is too heavily weighted in favor of the federal government.

To improve the coördination of health facilities in state and local governments, all major federal health agencies should be grouped together under the U. S. Public Health Service. Federal, state, and local health agencies must also work more closely with the public schools, and our educational system everywhere should be improved and equalized as between geographical areas. Health without education and education without health are both impossible.

In order to have fewer sick people and fewer people with sicknesses, development of a preventive health program, based upon constant research, should go hand in hand, if not with precedence over the expansion of curative facilities. In deciding this question of priority, our whole philosophy of democratic living is involved. Have we positive aims for the reinvigoration of the human mind, body, and spirit, or are we merely interested in alleviation of the suffering created to a great extent by our social defects? Far too much of our welfare work is now devoted to compensating people for misfortune that might have been prevented. To be sure, we must protect the sick, the weak, and the incompetent. But it is high time we spend more of our energies on protecting the well, the strong, and the talented, if our nation is ever going to develop its fullest human, civic, and ethico-political capacities. If we are not to build a gigantic centralized welfare-state in which the politicians take over the rôle of guardians, our liberty must be the means of creating

and promoting the superior individual.

After all, the Department of Agriculture spends billions for the promotion of the health of cattle and the productivity of the soil. It would pay infinitely greater dividends in cold cash, to say nothing of higher values, to promote the total well-being and the productivity of our human resources. Just as the county agent of the Department of Agriculture puts the latest expert knowledge about agriculture at the disposal of the farmer, so the local health officer must put the fruits of research on preventive medical care at the disposal of the people as a whole. This preventive program must also become the link between the individual and the curative organizations.

How then do we develop our hospital system so that its services are accessible to all the people, and how do we finance such services?

To salvage the unique system of hospital services and connected medical training that we now have, is a first essential step. The enormous cost of free hospital care for relief patients was formerly met in these voluntary institutions by payments of the middle and upper income groups and by voluntary gifts. Now these sources of income are drying up while the various costs are skyrocketing. In most big cities, the municipal governments already pay for part of the free care of the indigent. It seems obvious that every municipality should now pay the total cost for the treatment of its relief cases, whether in the hospital or for outpatient services. In some cities the state will have to supplement the city payments in proportion to the local tax resources. If the hospitals were relieved of the heavy costs of free care, they could use their endowment funds and other financial resources to reduce charges very considerably for the lower and middle income groups.

To make sure that charges to the middle income groups will be lowered as the states and municipalities take over the total cost of free care, the cost-statements of voluntary hospitals, that furnish the basis on which the state pays the hospital for its services, should be subject to review by the state auditor. This practice already exists in several states. In Maryland, for example, the state, counties and cities have already accepted the responsibility for the relief load, though they do not as yet carry it in full. The machinery is a contractual relationship between the hospitals and the board of health. By this gradual, evolutionary approach toward the redistribution of hospital costs, Dr. Lowell J. Reed, Vice-President of Johns Hopkins University, is convinced that better care can be secured for the average person at a price he can pay than by a nation-wide revolutionary upheaval in the financing and distribution of medical services.

Since the hospital is the basis of medical care, the federal government cannot at present underpin a national health program more soundly than by expanding the hospital facilities of the country through the Hospital Survey and Construction Act. If the plan for the decentralization of hospital care is carried out, we would then have the large central hospital with its medical school, making available its specialized facilities to the subsidiary area hospital, to the smaller community hospital, and to the local health center. All the benefits that modern medicine has to offer would be chanelled from the large modern medical centers to the remotest rural hamlet. From the top down would flow an educational program, both inservice and preservice, for all types of health personnel—physicians, dentists, nurses, technicians, and others. On the other hand, there would be a referral of patients from the small community health center, to the area or community hospital, and to the large medical center.

The introduction of planning for hospital and other health service on a regional basis demands the immediate integration of the Army and Navy hospitals and the Veterans' hospitals with those to be constructed under the Hospital Survey and Construction Act.

At present the government is not doing as well as it should by the long-stay patients, the mentally and chronically ill, and the tuberculous cases. The Commission on Hospital Care has pointed out that the care of mental illness and chronic diseases should be decentralized and integrated into the general health program of each community hospital, with special emphasis on prevention. "When that happens" said Graham L. Davis, "those diseases will disappear as major health problems."

In order that the Hospital Survey and Construction Act may serve the needs of the entire nation, its appropriations should be increased and its provisions for financing of construction and administration amended. The areas with inadequate tax resources cannot possibly carry two-thirds of the load and therefore cannot benefit from the Act in its present form.

If we take for granted that the best medical care shall be available to all of our people, how is it to be financed for low income groups?

I have time to consider the thorny problem of compulsory versus voluntary insurance only in its broadest aspects. The construction of adequate hospital facilities and the training of sufficient personnel to staff them must have first call on public funds, for no system of insurance, voluntary or compulsory, can have validity without them. If we rush into compulsory national insurance, the drain on public funds would be so great that the coverage of the nation with properly staffed health departments and the nation-wide implementation of the Hospital Survey and Construction Act would be impeded, if not impossible.

On the other hand, it is also a fact that we shall be forced to accept compulsory national health insurance before very long, unless we make a greater success of voluntary health insurance without delay, especially for the low income groups. The fear of sickness and the high cost of modern medical care must be lifted from the minds of our people. To achieve this end, the medical profession must throw itself wholeheartedly behind all coöperative insurance plans whether for medical service or hospitalization. The local medical societies must encourage, instead of blocking, the efforts of the Blue Shield to establish standards and to develop complete coverage of medical service. The various independent insurance systems in industry, labor unions, and other groups have come into being only because the Blue Shield has not improved the range and quality of its medical care. The first requisite is a predominance of laymen on the local boards. It is significant that the Blue Shield, which is dominated by doctors, has no standards of medical care, whereas the best coöperative insurance groups under lay control have succeeded in establishing standards over the opposition of the medical profession.

As a matter of fact, the pretensions of the American Medical Association that the doctors must control the development of a national health program if it is not to create what Dr. Fishbein calls "peasant medicine," cannot be substantiated by experience. The voluntary hospitals, America's pride, which are managed by lay boards, have always insisted upon standards, whereas the proprietary hospitals, whose boards lack consumer representation are mushrooming all over the country, because they have no standards and any doctor with a license can work in them regardless of his qualifications. With the whole-

hearted coöperation of the American Medical Association, the Blue Cross and especially the weaker Blue Shield could raise the standard of medical care all over the country. The innumerable voluntary insurance plans if pulled together under the Blue Cross and the Blue Shield would then create the two strong nation-wide insurance organizations we need. Moreover, insurance groups as vast as this could modify their rates for various parts of the country and reduce the rates for the membership as a whole. The names of these organizations do not matter. The important thing is that we achieve a unified system.

Health education and national health programs must be built from the community upward. But the process need not be slow if the state and federal public health officials as well as the medical profession do their share and mesh their efforts with those of the hometown folks. With determination, applied intelligence and coöperative effort on every government level, and between civic and professional leaders, we can transform the health picture in this country within five years and make it possible for every American family to obtain the medical service it needs, and for every American child to develop its maximum potentialities. We must all work together loyally and prove that democratic methods can deal effectively and quickly with all of the dynamic problems of the day.

Harvard Develops Training Program for Cancer Control Officers

According to the *Harvard Public Health Alumni Bulletin*, the Harvard School of Public Health, Boston, has received a substantial grant from the U. S. Public Health Service and the Massachusetts Division of the American Cancer Society to organize a program for the training of cancer control officers to fit them for the administration of cancer control work in either official or voluntary health agencies and for epidemiologists, statisticians, and health educators in order to prepare them for effective participation in cancer control programs.

Leonid S. Snegireff, M.D., Dr.P.H., who has been appointed Associate Professor of Cancer Control in the Department of Public Health Practice, will have charge of the program, which will be closely integrated with the new Cancer Detection Clinic at the Palmer Memorial of the New England Deaconess Hospital and with the cancer control programs of the Massachusetts Department of Public Health and the Massachusetts Division of the American Cancer Society. Miss Beryl Roberts, formerly Director of Health Education in the Massachusetts Tuberculosis League, has been appointed Instructor in Health Education, and will be responsible for the development of the health education work in connection with the cancer program.

In addition to the basic postgraduate training leading to the Master and Doctor of Public Health degrees, the cancer control officers will receive special instruction through the coöperation of agencies in the state concerned with cancer diagnosis, treatment, research, and education.

Improving the Quality of Medical Care

The Training of Personnel *

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TRADITIONALLY, and in some quarters even today, the term "medical care" has been used synonymously with the services of a physician. During the last several generations, however, the accumulation of medical knowledge and skills has been so vast and the application of preventive, diagnostic, curative, and rehabilitative measures so complex that a radical alteration in this concept of medical care is inescapable.

If, for a moment, we limit our consideration to medical care within the hospital, recognizing that such institutional services represent only a limited, though vital, fraction of the total requirements of a modern community, I am reminded of a comparison made a few years ago by one of this country's outstanding clinicians and medical educators. As an illustration of the tremendous changes in medical practice which had taken place during his professional lifetime, he portrayed the contrast in the type of medical care received in the same hospital by two patients suffering from the same disease process, one treated in 1908, the other in 1938.[1]

In the first instance, the patient remained in the hospital for two weeks and the total record included two and a half written pages. The observations thus recorded represented the combined efforts of two physicians—the attending physician and the house officer—with assistance provided by one specialist, the pathologist-bacteriologist.

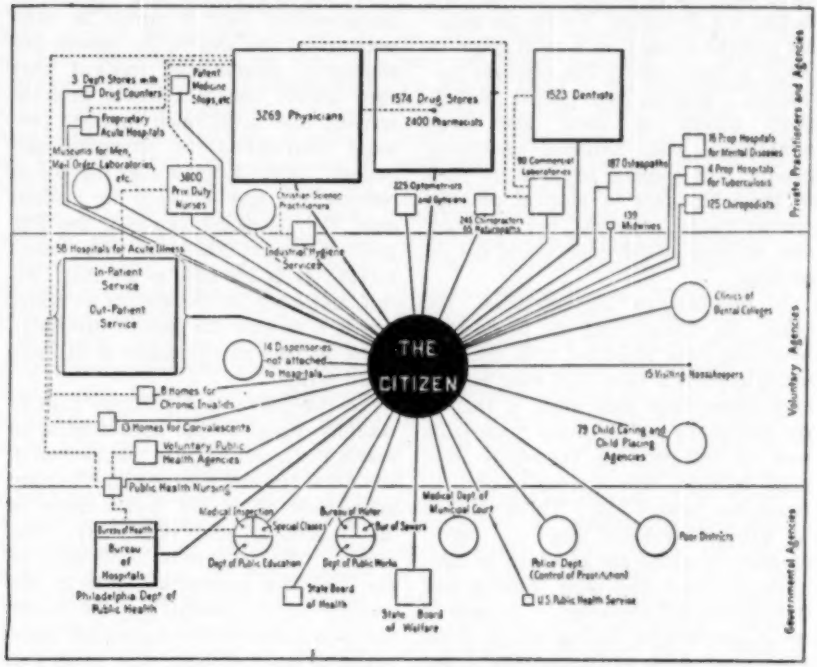
The second patient, cared for 30 years later, also suffered from heart disease and was still in bed after 19 weeks of hospital attention. At that time the total written record comprised 29 pages and represented the combined observations of 3 visiting physicians, 2 residents, 3 house officers, 10 specialists and 14 technicians; a total of 32 individuals. This enumeration, of course, does not take into account the additions in supporting personnel within the hospital made necessary by the rapid evolution of institutional medical services.

If we turn our attention to the broader panorama of complete health and medical services for the community, may I refer you to the accompanying chart (Figure 1) entitled "The Complexity of Medical Care," drawn from the final report, "Medical Care for the American People," of the Committee on the Costs of Medical Care.[2] This chart was prepared in the course of one of the studies made by that committee in Philadelphia in 1928. No one need be reminded that, in the 20 years which have elapsed, many other agencies and institutions have been added to those enumerated at that time, and many of those listed have expanded their resources and services.

Abundant additional evidence is available, as Franz Goldmann has recently stated, that the term "Medical Care"

* Presented before the Medical Care Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

FIGURE 1—From Medical Care for the American People, Final Report of the Committee on the Costs of Medical Care (Ray Lyman Wilbur, Chairman) *Publication No. 28*, the University of Chicago Press, 1932, Chicago, Ill.



THE COMPLEXITY OF MEDICAL CARE

This diagram shows the complex network of medical facilities in a large city. Many of the significant interrelations could not be depicted here. The area of each square indicates the relative costs to the citizens of Philadelphia in 1928 of various types of medical care. For items indicated by circles, data are unavailable.

must "be construed to mean all the personal services by members of the health professions, and all the clinic, hospital, and related facilities that are necessary to attain the highest level of health, prevent disease, cure or mitigate illness, and reduce, if not prevent, disability, economic insecurity, and dependency associated with illness . . . The various types of facilities and personal services essential to adequate care of the individual in health and sickness are so closely related to one another and so interdependent that they should be considered as an entity. Professional services for prevention and treatment must be combined if the war against disease, human suffering and poverty resulting from illness is to be waged successfully. The chain between illness and poverty must be broken, and organization of medical care in the widest sense of the term can go far toward achieving this objective."[3] It is on such a concept of medical care that I wish to base my discussion of some of the problems associated with the training of the personnel required to improve its quality.

According to the best figures available at the present time, approximately one million and a half persons are engaged as professional, technical, and other per-

sonnel in providing medical and allied services for the American people. Of these only one in seven, or perhaps one in ten, is a physician. Within the medical profession itself, in a short space of years, at least twenty-five separate specialties, I believe, have gained recognition; sixteen of these have been established with national qualifying boards. The training required for each of these branches of medical practice creates special problems, but a discussion of them at this time would not be germane.

In addition to the physician, the nurse, the dentist, and the pharmacist have long been identified with the provision of medical care. But what has not been appreciated sufficiently is that in the last quarter of a century a veritable host of indispensable coworkers have been brought into existence, and as Grant has pointed out, "There will not be adequate medical care . . . until auxiliary workers are provided in adequate numbers and their training and supervision well organized."[4] I know of no comprehensive listing of all these specialized skills which are now being called upon to assist and supplement the efforts of the physician. It is worthy of mention, however, that each year sees the formulation of minimum training and other requirements for additional groups of professional and semi-professional workers. As an example of what can and must be done on even a broader scale than at present, the Committee on Professional Education of this Association has accomplished an outstanding task by establishing basic qualifications for some fifteen separate categories within the public health field alone.[5]

If I concentrate my attention during the remainder of this discussion on the training of the physician, I do so because of my own greater familiarity with some of the problems in that area of education, and because of my firm belief that as the key individual in the medical care team the quality of service which the physician renders is immediately reflected in the performance of his associates. Also it cannot be overemphasized that despite its present-day mammoth proportions, medical care must always remain a highly personal service—one based upon intimate personal relationship of physician and patient. Even though a huge number of persons are now engaged in medical care, the physician occupies the hub position around which all others must rotate. It is his task to correlate, direct, and supervise the work of all others and it is to him the patient invariably turns for help and guidance in utilizing other skills.

The objective of any sound plan of training aimed at the improvement of medical care must be the preparation of the physician and his associates to meet adequately all of the health needs of the individual and of society. The "value," the "degree of excellence," or the "relative goodness"—that is, the quality—of the services they are to render is so insusceptible to accurate measurement that, at best, any indices of improvement thus far improvised are admittedly crude. It has been suggested that were we merely to augment the supply of physicians and other professional and technical personnel, a large share of our task could be accomplished. But even if one were to acknowledge glaring deficiencies in numbers, there is ample reason to believe that tremendous benefits would accrue were those workers now engaged in the health and medical field more equitably distributed, and were some effort made to improve the efficiency and utilization of available skills.

Several months ago, Dr. Alan Valentine, President of the University of Rochester, presenting a statement for nineteen university presidents, reported that for the last academic year (1947–1948) "The budgets of the seventy-

seven medical and basic science schools . . . exceed $43,000,000 and, generally speaking, this figure does not include costs of patient care in teaching hospitals, or plant maintenance, or general university administration, or research grants from foundations, industries and government"; and, continuing the quotation, "all things considered, I believe that medical schools now need about $40,000,000 more per year."[6] This sum of more than 80 million dollars, considered by the best qualified authorities as essential each year for the proper education of the approximately 23,000 students now enrolled in medical school, is admittedly small compared to what the American public spends annually on vitamin pills, jewelry, and recreation, and is less than is expended by those seeking admission to some of the major horse-racing establishments throughout the country. Nevertheless, at the present rate of expenditure, it costs the average medical school almost $9,000 to grant a single degree; the expenditures ranging through rather wide limits from slightly under $3,000 to somewhat more than $38,000. Of this amount, student tuition accounts for approximately 25 per cent.[7]

In his discussion, Dr. Valentine pointed out that the medical schools of the country are faced with a desperate economic crisis brought about by the difficulty of maintaining their current sources of income, plus the fact that to continue their present programs of teaching, the additional amounts needed year by year represent the income, at present interest rates, of an increased endowment of about one billion dollars. To this must be added the 200 million dollars which 55 schools are now seeking or estimate they need for replacement and improvement of physical plant and facilities. And yet, you will note, I have made no mention of the equally grave, though less well analyzed, financial requirements for the proper education of the other personnel essential to proper medical care.

It is possible that a satisfactory solution can be found through federal aid for professional education along such lines as those proposed by Senator Thomas of Utah in the last session of Congress (S. 2588, 80th Congress, 2nd Session). Until recently, however, the extension of tax support of medical education has been frowned upon in many quarters, even though more than one-third of our present graduates are receiving their degrees from institutions dependent primarily on governmental financing. It is fundamental that the needed support for the training of medical care personnel be forthcoming and yet, with costs and tuition rising rapidly there is sound basis for assessing the product which is now being turned out before jumping to the conclusion that all that is needed is more of the same.

It should be remembered also that since the turn of the century, the phenomenal addition of some 17 years to the life span of the American people has been shared by those entering the medical profession. Assuming that a physician begins practice at about age 30, his expectation of life at that age now amounts to almost 39 years.[8] Thus, his training and preparation for practice must furnish him with the basic equipment not only for the medical services he is called upon to render today, but for the type of professional endeavor in which he will be engaged many years hence. Moreover, we must provide postgraduate and continuing education of the physician of a quality at least equal to that which we demand of our undergraduate educational programs. Raymond Allen has expressed it most succinctly—"Any sound plan of medical education must embrace the entire educational process from childhood to retirement from practice."[9]

The period of medical progress which we now enjoy has been characterized by

the successful application of the great technical advances of the natural sciences, chemistry, physics, and biology, to the major disease processes to which man is heir. The focus of interest in the training of the physician has been drawn more and more to the mastery of isolated technological procedures and to the understanding of the structure and function of organs and systems. Though even greater triumphs lie immediately before us along this avenue of attack, in so proceeding "we have broken the human being into his component parts, even into individual cells, better to understand the workings of this marvelous living organism, only to become preoccupied with the fascination of the parts and to lose sight of the man. All too frequently the vital processes of synthesis and of understanding the working of the whole have been left for the graduate physician to accomplish as best he can in a later period of actual medical practice.

"We must not permit the brilliant accomplishments of the natural sciences to overshadow the fact that social conditions under which human beings live may contribute to the causation of disease, as well as to satisfactory treatment or prevention, just as much as physical, chemical, or biological factors. To be sure, the social sciences have only recently begun to make available to the physician highly refined techniques of study or scientific principles which can be applied readily to everyday problems. Too often has the physician been prone to overlook the vast contributions to health made by widespread public education, community sanitation, improved housing and working conditions, better general nutrition and many other social advances; and even at times, he has tended to minimize the importance of economic security of the family and of the group in the purchase of specific health and medical services."[10]

There are some of us who firmly believe that we stand today on the threshold of a new era of medical advancement—one in which the study of man as a social being, as well as a biological entity, may yield as great if not greater dividends in health than have been achieved through the less comprehensive approach of the past. Certainly, if prevention of illness and the promotion of health in the positive sense of the term are our objectives, such a perspective is an essential one.

We are strengthened in our conviction by the proposals for medical education of the future recommended in the report of the Goodenough Committee in Great Britain[11] and of the New York Academy of Medicine's Committee on Medicine in the Changing Order,[12] and by what is already apparent in some of our leading institutions of medical education.

Early this year a joint committee of the Association of American Medical Colleges and the American Association of Medical Social Workers published the findings of a three year study entitled "Widening Horizons in Medical Education"[13] in which current trends in teaching the social and other environmental factors in medicine are examined. As primitive and experimental as these efforts may be at the present time, they offer considerable encouragement to those who maintain that every physician must be prepared to direct his efforts in the control of tuberculosis, for example, through an attack upon social maladjustment as well as upon the tubercle bacillus; that he must include the public health nurse and the medical-social worker as well as the radiologist as integral members of his team, and that prevention of exposure and early case finding are infinitely more effective procedures than are pneumothorax or thoracoplasty.

To accomplish such a task, it will be necessary to utilize even more varied skills and greater resources than have commonly been employed in medical

education. No longer can medical care be provided in apparent isolation from the vast body of knowledge now being accumulated by the sociologist, the psychologist, the anthropologist, and the educator, to mention only a few. If anyone dares to minimize the contributions to medical care made thus far by the social scientists he might be reminded that the chemist, the physicist and the bacteriologist responded brilliantly when the physician brought to them for solution the challenging problems encountered in daily practice. Also, it is an interesting commentary on our times that many of the required resources exist in great abundance in the very environments in which our medical schools are located, and seek the opportunity to be of service in better fitting the future practitioner of medicine for his appointed tasks. In an experiment in which I have participated, it has been possible to weave effectively into an undergraduate program in preventive medicine the excellent physical resources and the expert skills of the staffs of four governmental agencies and more than a half dozen voluntary agencies actively engaged in community health work. Fifty years ago, the hospital and the medical school joined forces to great mutual advantage. On the one hand the medical educator could draw his student out of the lecture hall and the dissection room and enhance his theoretical training with practical experience at the bedside of the sick patient. In return the hospital and its staff received the intellectual stimulation and acquired the scientific methodology which only a close and continued association with an academic institution could provide. Today the public and private health agencies stand in the same position held by the hospital at the turn of the present century.

Better quality of medical care for the present, as well as the future, demands that the medical student as well as those preparing for membership in the associated professions be trained not only in the lecture hall, the laboratory, and the hospital; but in the clinic, the health center, the factory and workshop and, yes, even in the home, wherever the needs of the individual and the group require them to go. As the institution charged with the education of the physician, the medical school today thus has the unique opportunity and responsibility to serve as the necessary catalyst in raising the health status of the community. Through it a two-way channel can flow enriching the health agencies as it has already enriched the hospital, and in return its students will be better prepared to shoulder the responsibilities which later will be theirs. It is through such a pattern as this that we can best assure the proper training of personnel.

Before concluding this brief discussion, it is imperative that some reference be made to an indispensable link in the chain leading to improvement in the quality of medical care, for the future performance of the student is inseparably bound to the quality of his teacher. In keeping with the derivation of the term "doctor" and as set forth in his Hippocratic Oath, the physician has always recognized his fundamental obligation to transmit the fruits of his knowledge and experience to those who are to follow. Even today, a major share of the clinical teaching in the undergraduate curriculum as well as in the internship and residency periods is borne by the volunteer instructor, and modern medical education would not be possible but for the tremendous contributions in time and effort made by these members of the medical profession.

Nevertheless, since the turn of the present century there has been an accelerating need to supplement our teaching teams with a nucleus of well trained and inspired full-time and part-time instructors whose task it is to provide continuity and unity to our increasingly

complex educational pattern. In addition to such assignments this relatively small group of individuals has been largely responsible for many of the most significant advances in present-day medical practice and their devotion to research and teaching has served both as a guide and an inspiration to all students with whom they have contact. If we are to insure for the future the quality of medical care now known to be possible we must seek for such posts the best that our schools are now graduating; we must assure them the security which only a few now possess and we must provide the opportunity and encouragement to apply their talents to the larger problems of medicine now awaiting solution.

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Disposal of Fluorescent Light Tubes

Industrial Lights, Division of Industrial Health, South Carolina State Board of Health, for January, 1949, calls attention to possible hazards from the indiscriminate breaking of fluorescent light tubes. Most types contain beryllium, which if it enters cuts or wounds, will delay or prevent healing and lead to chronic inflammation. The following precautions are suggested for those disposing of burned-out tubes:

1. Wear protective goggles and gloves at all times.

2. Break lamps out of doors (where possible) in waste disposal areas, or in ventilated hood and, to avoid unnecessary dust, within the waste container.

3. Where large numbers of tubes are disposed of, the operator should be required to wear a respirator approved by the U. S. Bureau of Mines for toxic dusts.

4. For ultimate disposal the broken lamps should be thrown into water or in a dump where they are not likely to be disturbed. Under no circumstances should the broken tubes be placed in an incinerator.

5. In situations where it is necessary to break the lamps indoors, it should be done in an isolated room and in a hood, so as to minimize escape of dusts. Sufficient exhaust ventilation should be supplied to the hood to provide an air intake of at least 125 linear feet per minute at the breathing level.

6. The division of industrial health of the state department of health should be consulted when doubt arises as to the best procedure.

Improving the Quality of Medical Care

Group Medical Practice *

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THE importance of training of personnel, regional planning, and sound administration in improving the quality of medical care cannot be sufficiently stressed. But while these three alone can accomplish wonders, they can be most effective when they are associated with group medical practice in the day-to-day delivery of health and medical services. Conversely, although group practice alone can greatly assist in the improvement of the quality of care, it can reach its full potential for this purpose only when it is intimately related to the other three factors. The intent of this paper, then, is to set forth the specific contribution which can be made by group medical practice in the combined effort to improve the quality of medical services.

Perhaps the most significant fact about what group practice can do toward improving quality is that its influence in that direction is inherent in group practice—it improves quality almost automatically, so to speak. Note well, however, the word "almost"; as we shall see later, pitfalls await group, as well as individual, practice, and these must be avoided if the inherent values of the group method are to be realized.

What is there about group medical practice that permits one to state so confidently that its influence is generally bound to be conducive to improved quality? To appreciate this, it is obviously necessary first to understand what is meant by the term "group practice" and something about how it operates. In general, we can accept any one of several recent definitions of the term, all of which stress five factors: (1) there are several physicians (three or more has been suggested as a minimum number by the Public Health Service); (2) these physicians are expert in more than one special field of medicine (three orthopedists associated with each other, for instance, would not be considered a "group" in the sense meant here); (3) the physicians are systematically associated, as in a partnership or as paid members of a staff of some organization (hospital, industrial firm, labor union, coöperative, etc.); (4) income from practice is pooled and, after overhead costs, reserves, and so on have been provided for, distributed among the physicians on some basis other than solely the amounts paid to the group by the particular patients of each; and (5) the physicians use in common professional facilities and assisting professional, technical, and clerical personnel.

There are, as most of you are well aware, many kinds of groups, for example, those which provide a general medical service as distinguished from those whose practice is mainly devoted to referred cases. Sources of income likewise vary, from those supported largely by fees-for-service paid by in-

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dividual patients, to those chiefly dependent on a prepayment plan, an industrial or labor organization, or a health agency (official or voluntary) for their livelihood. For present purposes, the *kind* of group makes very little difference—although the "kind" does affect quality of service in many subtle and important ways. It is the *group method* itself in relation to quality of care which we are discussing. Nor are we greatly concerned here with the particular administrative structure involved, whether partnership, corporation, coöperative, and so on, although this, too, obviously can have great importance in considerations of quality. Here we shall emphasize more the factors common to virtually *all* kinds of medical groups, however they make their professional living.

It seems to me that group medical practice *per se* tends toward improving the quality of medical care because of the incentives it brings about in two separate, though intimately related, areas, namely the professional and the economic. In professional matters, the qualitative advantages of the group method arise from factors such as the following. The individual physician has easily available to him, in a medical group, the varied skills of his medical colleagues and associated personnel. He usually has access to technical facilities, such as laboratory, x-ray, and physical therapy equipment, vastly superior to what he as an individual could afford or could efficiently utilize. These associations stimulate and educate the physician as a member of a team. His specialized colleagues may be called in at a moment's notice; his daily work, in the nature of things, is constantly under the scrutiny of the other physicians of the group, senior and junior. In such circumstances, any man wants to do his best—and he expects their best from his associates. Other professional advantages work toward the same end A group may arrange systematically for free time for its individual members, whether for recreation or study. The young physician in a group may immediately exercise, under suitable supervision, the full range of his professional capacities instead of being obliged to wait, as is all too common in individual practice, for patients to accumulate while his hard-earned skills grow rusty. It is thus clear that the professional influences in a medical group provide an inducement to the improvement of the quality of service rendered by its physicians, individually and collectively.

In the economic area, the influences are no less conducive to our purpose. First, the group method, by its very character, makes for economies which aid rather than hinder professional quality. The ability of a group to obtain at relatively low cost to each individual physician, better technical equipment and personnel than its physicians could afford separately has already been mentioned. Additional economies are achieved by the fact that this equipment and personnel can be used to greater advantage by the group than by an individual physician. Many a general physician, for example, has in his office costly x-ray and physical therapy equipment which he can use but a few hours each day, but in a group such equipment can be kept busy to the limit of its capacity.

Second, physicians in group practice are apt to earn, whether because of the economies achieved or for other reasons, much higher net incomes, on the average, than those in individual practice. A recent study by "Medical Economics," for instance, showed that in 1947 whereas physicians in solo practice received an average gross income of approximately $18,000 and a net of $11,000, physicians in partnership or group practice averaged $27,000 gross and $16,500 net. While amounts of earning are obviously not necessarily

commensurate with quality of care, the possibility of a better living would seem bound, in the long run, to aid in attracting the better trained physician to group practice. The advantages of steady income and, in many groups, of a planned retirement system are other influences of the same character. The joy to a physician of being relieved of the tedious burden of business management, of hiring personnel, purchasing, setting and collecting fees, offered by a medical group through its business manager, is a third advantage in the economic area which not only attracts the best type of physician but leaves him free to devote his full time and energy to his professional work.

But above all, from the standpoint of quality of care, the financial arrangements of group practice induce coöperative rather than competitive effort on the part of the physicians of a group. A healthy competitive element exists over the years, of course, in any group, because each physician wants to demonstrate his value to the group as a whole and thus his right to a larger share of the proceeds—even this is a stimulant for high quality in a physician's service. But for the daily work of rendering medical services, the economic as well as the professional incentives in group practice lead toward coöperation and, therefore, improved quality. For in a group, the good work done by any individual physician reflects credit on the whole group. Discredit for the whole group obviously results likewise from any physician's poor work. Therefore, all physicians of a group, if only from purely economic motives, are constantly stimulated to do good quality work themselves and, equally important, to urge their associates to attain the same ideal.

In most existing medical groups, the physician's share of the group's net income is based upon his competence and his general value to the group as a whole. These shares are usually not determined primarily by the number of patients seen or the number of services rendered by a given physician, although such matters may be taken into account. As a result, individual physicians in a group lose no income when they refer a patient to another physician, and have no financial incentive to "hold on" to a case personally. Rather, the financial interest of each physician is best served if the most thorough and satisfactory job possible is done for the patient by the group as a whole, so that the group as such may attract and keep a good clientele. Thus, the economic incentives of group practice encourage physicians to make use of the varied skills of their colleagues and of the group's laboratory and x-ray services for diagnosis and treatment as fully as may be medically desirable for the patient's benefit. Such teamwork medicine is of course the essence of group practice, and is obviously necessary to produce a high quality of care amid the complexities of modern medicine which cannot conceivably be grasped by any one physician alone. So we see that economic incentives for high quality, as powerful as the professional ones mentioned earlier, spring from the nature of the group method itself.

The value of group medical practice in improving the quality of medical care is not limited, however, to the positive advantages to be found within a medical group. It arises also in a negative sense, from the fact that group practice, and as far as can now be ascertained only group practice, will serve to correct many of the evils apparently inherent in the individual, competitive practice of medicine on a fee-for-service basis. These evils are in large part of recent origin and do not spring primarily from any malign intent on the part of the physician as a person but rather from the sane scientific advances which have made teamwork in medicine necessary and desirable. Some of these evils have

been referred to by implication in describing the advantages of group practice. The waste by duplication in individual offices of often inadequate but nevertheless costly technical equipment and associated personnel, rarely used to their fullest effectiveness, is one example. Another is the waste of the time and skill of the young physician in individual practice who must frequently spend much time in idleness before his talents can be fully utilized. The expensive equipment and highly skilled associated personnel and the long and costly training of the young physician, all of which are in part wasted in solo practice, are, of course, necessitated by the tremendous advances in medical science. All are too precious to waste. Group practice, especially in association with better training of personnel, regional planning, and sound administration can go far toward eliminating this waste.

But of all the evils of individual practice which the group method can eliminate, the most serious is the chaotic state of the relationships of the general practitioner and the various types of specialists with each other and the effects of these relationships upon the care of patients. Clearly, from the patient's point of view, he should be referred to the various types of specialists and provided with laboratory and x-ray examinations as frequently as necessary for the management of his case according to the best standards of scientific medicine, but no more so. Obviously, the exact optimum for such referrals is often impossible to determine in any given case but, over the long run, something very close to it can be achieved in a well organized medical group or on the wards of a teaching hospital. There is no doubt that the optimum can be and sometimes is achieved in solo practice, especially for relatively well educated and well-to-do patients. But the barriers to a proper use of teamwork in individual practice make attainment of this goal exceedingly difficult at best.

On the one hand, the physician in isolated practice may refer his patients to others too infrequently. He may fail to use others' services, for one thing, simply because his years in solo practice have so limited the horizons of his knowledge that he does not even realize that his patient might gain from special tests or consultants' opinions. He may hesitate, too, to refer a patient for consultation or other special service because of the cost to the patient. This may also be true in group practice, of course, but to a lesser extent because, in the first place, the group can control the fees for *all* the services the patient needs and can temper the wind when necessary, while the individual practitioner usually cannot greatly influence the fees set by the individual consultants to whom he refers patients. Second, it is the practice in many medical groups—and a good practice for improving quality—to make no charge for consultations; specialists' fees are charged only when the patient has been transferred to the specialist for continuing study or treatment.

But probably the strongest motive against utilizing referral services to full effectiveness in individual practice is the competitive element. In its crudest form, this means that a physician may not refer his patient to another physician for fear that he may "lose" his patient (and his fee) permanently to the second doctor. More subtly, it means that a physician may fear that by calling for frequent consultations he will undermine the patient's confidence in his own ability. He may believe that his reputation for self-reliance, broad medical knowledge and skill will suffer among his colleagues if he calls on others too much. Most of all, perhaps, he may fear that the consultant will find errors in his work and "show him up" to both the patient and the profession.

For all these reasons and for at least one more, namely, the sheer physical in-

convenience to the patient of going about from one office to another, making numerous appointments with varying periods of delay before seeing the different doctors, there is an inevitable tendency in individual practice not to employ the full medical team to the extent it should be used for realizing the full potential of modern medical service of high quality. The physician in solo practice, therefore, is often obliged to try to perform a range of service up to and sometimes beyond the limits of his technical capacity. This, of course, adversely affects the quality of service obtained by the patient and, in the long run, tends to produce in the physician a habit of superficial performance, trusting to luck and nature that his lack of thoroughness and of specialized knowledge will not cause errors resulting in serious disablement or death.

On the other hand, somewhat paradoxically, the physician in individual practice may under some circumstances refer his patients too *frequently* to other physicians. Here the practice of fee-splitting rears its ugly head. Fee-splitting, like the other evils mentioned, does not occur because of any desire of physicians to perpetuate a harmful practice, but arises almost inevitably out of the character of the individual practice system. I dare say it will continue, in spite of all the laws and professional pronouncements that can be devised, as long as this system is the prevalent method of practice. Here again, the basic reason is the advances in medical science which make specialization a necessity. One can hardly expect the general physician who has correctly diagnosed a case of appendicitis on a $10 house call not to feel that he deserves a lot of the credit for saving the patient's life and not to gaze at the surgeon's $200 or $300 fee with some envy. Moreover, one can understand that the specialist (particularly the young one, just starting in practice) in a fiercely competitive situation may yearn to reward tangibly the general physicians who most assist him in building up his practice by referring cases to him.

But it is not the act of splitting a fee that makes this practice an evil and an impediment to a high quality of medical care. It is, rather, the fact that the split is unknown to the patient and unregulated in amount and volume. Thus, the patient does not know, when he buys a pair of eyeglasses from an optician, for example, that part of what he pays may go back to the doctor who referred him to that optician. The same is true, of course, for x-rays, surgical procedures, and so on. The result of hidden fee-splitting is that if a sizeable split is in the offing the physician may be tempted to refer patients more frequently than is medically necessary and to send his cases to the doctor or laboratory or optician who gives the biggest kickback rather than the one professionally most competent to handle the case. The magnitude of the practice of fee-splitting may perhaps be gauged by the fact that more than 4,000 eye specialists—about one-half of those in the United States—were involved when the U. S. Department of Justice sought to stamp out rebates in the optical industry.

The utter futility, under our individual practice system, of expecting the medical profession to cope with this evil is illustrated by what occurred in New York City in the fee-splitting scandals under workmen's compensation a few years ago. Almost 2,800 physicians were charged with participation in the fee-splitting racket. One hundred and seventeen were definitely exonerated. More than 1,000 were definitely found to have been implicated. A few lost their licenses to practise medicine. But a diligent, personal search of the published records of all medical societies in New York fails to disclose a *single* instance in which any of the remaining 900 "definitely implicated" physicians were suspended

or expelled by a medical society. This is a commentary not only upon the durability of fee-splitting in the individual practice system, but also upon the ability of medical societies to set and maintain professional standards in general. It is in interesting contrast with the promptness and vigor displayed by medical societies in disciplining members who participate in group practice associated with prepayment plans for comprehensive medical care.

Group practice is sometimes considered to be a type of fee-splitting. This is *true* in the sense that a patient's payment is divided according to the group's internal administrative provisions, and does not go exclusively to the doctor or doctors who treated that particular patient. But group practice most emphatically is *not* fee-splitting in the sense that this open division of income among the physicians of a group is *never* a kickback paid for favors received. The patient knows all along that he is paying the group for his service, not an individual physician, and he fully expects the group to divide its income equitably among its members. So division of income by the group method completely eliminates the evils of the hidden kickback system and yet, at the same time, provides a distribution of income among general physicians and specialists more equitable than is possible in solo practice unless fees are split.

From what has been said up to now, you may think I believe that the group method not only is the best way to practise medicine of high quality, but also is without faults, pitfalls, or dangers of any kind. This is decidedly not the case. You will recall that earlier in this paper it was said that group practice was *almost* automatically conducive to a high quality of care. Now for the "almost." For one thing, physicians in group practice are still human beings and, like the rest of us, they do not always get along harmoniously, on either professional or economic grounds. The very closeness of their day-to-day relationship tends to emphasize any differences between the doctors in a group much more strongly than would be the case among the same men in 20 or 30 individual offices scattered all over town. This means, of course, that good methods of self-government, of administration, and of settling disputes are essential for the successful operation of any medical group.

Then, too, group practice can and sometimes does develop an impersonal attitude toward patients which may result in physicians dealing with people as case numbers or case "material" rather than as living persons with emotions, home difficulties, and business problems, living in a community. This is by no means inherent in the group method, but must be guarded against or corrected if it appears. One of the principal safeguards against such an impersonal attitude used by many groups is to make sure that each patient of the group has one—usually a general—physician whom he regards as his family doctor and who, in his turn, assumes real responsibility for the welfare of that particular patient at all times, or at least until the patient (or the doctor) decides he should be under the care of another physician.

Limitation on choice of physician sometimes makes both patients and physicians distrust group practice. It is sometimes claimed, indeed, that the competitive element in free-choice individual practice is a stimulus toward improved quality in the service rendered by the competing physicians. This seems at best a dubious contention, for the untrained "customer" is exceedingly poorly equipped to judge the quality of a physician's service, and may likely be influenced mostly by factors having little to do with quality. For shoes or ice boxes or even politicians the public may have some basis to make a judgment,

but how can it evaluate a surgeon's skill or a bacteriologist's competence? On the other hand, the kind of competition found in individual practice places an emphasis on *quantity* of service and upon the money received for it that certainly distracts the doctor's attention from its qualitative aspects, to put it mildly. Healthy competition exists within medical groups, as already pointed out. Vigorous competition often exists between two or more medical groups also. So group practice can make use of the good features of competition, which are conducive to high quality, while avoiding most of the bad features, which do it harm.

To return to choice of physician, choice naturally *is* limited within any one group, although patients may, of course, leave the group entirely if they wish, and the choice is in any case much less limited than that of the patient in the ward or outpatient department of a voluntary or public hospital. Most groups encourage their patients to select freely among the physicians who are competent in the particular field of service they require. Groups also permit patients to change physicians if they wish. On the positive side, a group is in an excellent position to guide a patient intelligently in the choice of the physician best suited to his needs. Such guidance seems usually to be gratefully accepted by the patient, if it is given tactfully and thoughtfully.

Some groups have irritated their patients by a confusing welter of administrative detail, numerous records to be made out, involved appointment systems to be dealt with, complicated procedures to be followed, puzzling mazes of corridors, examining rooms, laboratories, and so on. These are real danger points, especially in a large group, but most of them can usually be avoided by skillful and patient administrative effort.

Another frequent charge is that, in group practice, physicians are apt to use the readily accessible consulting, laboratory, and x-ray services too freely —in other words, to show a tendency to give every patient "the works," whether he needs it or not, often at extravagant expense. This obviously can happen. But studies of numerous groups in actual operation indicate that it happens infrequently and need not happen at all. Indeed, an interesting study made two years ago by the Pennsylvania Hospital Association showed that in several sample private groups, patients' total fees for accessory services were considerably less than they would have been for the same services procured through solo practitioners, and in several instances less than the fees would have been in voluntary hospital outpatient departments. As a matter of fact, a well administered group can control excessive use of such services far better than can individual practitioners.

Finally, it is sometimes said that physicians in medical groups tend to stick too close to their building, being reluctant to make home visits, go to rural areas, etc. This also can happen and has happened, particularly in the so-called "reference" groups. Again, however, this weakness is not inherent in the group method. Many groups diligently serve the people of their communities at home or wherever else they need to be cared for, and some have successfully established part- or full-time outposts in small towns or rural areas which were so small or so poor that they had for years been unable to support an individual practitioner. But because the outpost doctor also could spend part of his time in the group's center and could send patients there for complicated problems, the group could easily afford to serve the little community without mileage fees or hurried, long ambulance trips.

It can be seen, therefore, that there are indeed problems to be solved and many dangers to be avoided if group

medical practice is to provide the high quality of medical care it is potentially capable of rendering. Yet, none of these appears to be so intimately a part of the group method that it cannot be successfully attacked if patience, intelligence, and energy are devoted to it.

In summary, group medical practice, particularly in combination with good personnel training, regional planning, and sound administration, offers an excellent method of improving the quality of medical care because of the many professional and economic incentives it affords which lead to medicine of a high quality. If thoughtful preparation, skillful administration, and a spirit sympathetic with patients' needs go into the development of group practice, we may expect to see it continue to spread and expand and to aid mightily toward the great objective of making the best in modern medical service accessible to all the American people.

American Public Health Association Resolutions

An Editorial from the J.A.M.A.

"On page 159 of this issue appear two resolutions adopted at the annual meeting, held in Boston in November 1948, of the American Public Health Association.

"One resolution deals with coöperation in the school health program and calls on the National Education Association and the American Medical Association to coöperate with the American Public Health Association and other groups in approving the principle of coöperative planning of health programs which involve children of school age. This resolution expresses the long declared and well implemented policy of the American Medical Association which began with the first meeting of the Association in 1847 and has been continuously a guiding principle in its policy. Since 1911, the American Medical Association and the National Education Association have coöperated through a Joint Committee on Health Problems in Education. Frequent symposiums on health of school children have been held at American Medical Association meetings. The Association has an active program of coöperation with educational agencies for better national health achieved through better health education and school health programs.

"The second resolution likewise coincides with the views of physicians often expressed, that the present system of allotting state aid to schools and school districts in part on the basis of average daily attendance is pernicious, conducive to attendance by children who are harming themselves and menacing others and a temptation to the violation of sound sanitary principles for the school in increasing or maintaining subsidies.

"The nation's leading public health organization does well to invite coöperation of the medical profession. Successful public health workers in official and voluntary agencies have long since learned that a coöperative medical profession is their strongest and best ally, but this idea has not seemed to permeate to certain leaders of the public health profession.

"The two resolutions calling on the American Medical Association for coöperation represent but two in the many areas of agreement between the associations. Others include the movement for county health unit coverage, the fight for universal pasteurization, the better training of public health personnel with a consequent improvement in salaries and tenure, the extension of the merit system in public health official agencies, the advance of medical research and the perennial battle against quackery. The organizations representing the medical profession and the public health profession should face the public united in their areas of agreement, especially since there is a large overlapping in membership."

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Improving the Quality of Medical Care

Regionalization of Hospitals *

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EXPERIENCE has shown that small communities do not ordinarily have in their midst the trained persons and educational resources to enable hospital and medical practice to attain the development reached in large medical centers. Through a grant from the Commonwealth Fund, whose Division of Rural Hospitals is concerned with the building and developing of general hospitals in small communities, an experiment was set up to work out a method whereby the existing resources of small communities can be supplemented and integrated into a close working relationship among themselves and with a large community functioning as a regional medical center.

The regional hospital plan was set up as an experiment and a demonstration in a voluntary association of hospitals and their medical staffs, known as the Council of Rochester Regional Hospitals. The problems of medical care of patients in the hospital are given primary consideration during the first few years of the Council's organization. It is anticipated that the principles of regional administration developed in connection with hospitals will apply also to public health and to the broader aspects of medical care. The economic aspect of medical care as related to payment for service is entirely outside of the scope of the Council program.

The Council has a basic policy or "charter" which is set forth in its agreement with the Commonwealth Fund. The 5 points of basic policy are:

A. Financial aid and planning for rational distribution of adequate hospital facilities throughout the region.

B. The promulgation of approved procedures in all departments of hospital organization and operation.

C. The development of such joint administrative services as may be considered desirable and practicable.

D. The development of consultation services in clinical and laboratory medicine, and in institutional administration.

E. The organization and administration of a continuous educational program for physicians, dentists and hospital personnel with emphasis on postgraduate study.

To provide funds for the plan the Commonwealth Fund made available a sum of $275,000 per year for 5 years. The annual contribution from Rochester funds is $10,000. Of this total an annual sum of $200,000 is allocated to capital improvement of small community hospitals, and $85,000 to education, advisory services, and administration. The grant is assured for a period of 5 years. At the end of that time, it is provided that the contract may be renewed with the expectation that the members of the Council, during the second period, will gradually assume a large part of the cost of their organization and the services it renders.

The region includes 11 counties in the trading area of Rochester. It contains a medical school, 6 urban voluntary hospitals, and 26 general hospitals

* Presented before the Medical Care Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

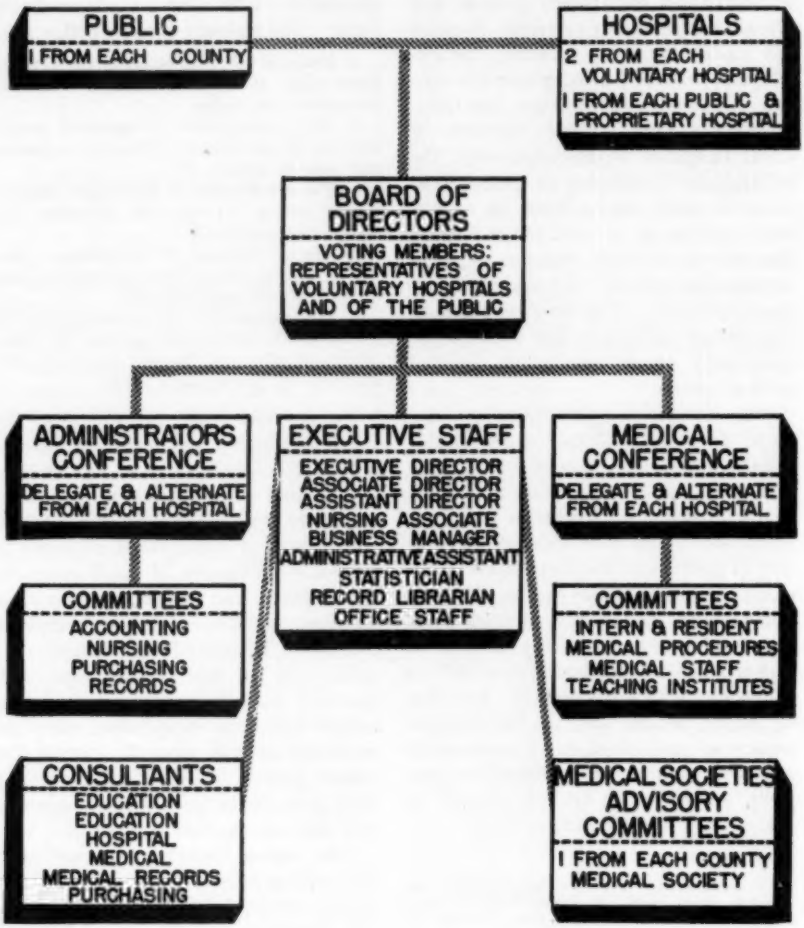
outside of Rochester. Full membership is limited to community hospitals owned and operated by unofficial, nonprofit associations and providing general care for acute illness. Associate membership with nonvoting representation on the governing and advisory bodies and with all benefits except grants for capital improvement is offered to governmental hospitals and to hospitals operated for profit.

ORGANIZATION

A Board of Directors, mostly laymen, guides the affairs and makes the policies for the Council. It is composed of two delegates from the governing board of each member hospital, and one

COUNCIL OF ROCHESTER REGIONAL HOSPITALS

ORGANIZATION CHART



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lay public representative from each county who has no direct connection with any hospital.

Two delegate bodies advise the Board of Directors, namely the Administrator's Conference and the Medical Conference. The Administrator's Conference, composed of the hospital administrators and their alternates, serves as a forum for the exchange of information on hospital administration. It also studies methods to solve common problems, and recommends policies and projects for the consideration of the board. The Medical Conference has a similar purpose as related to medical practice and problems centering around hospitals. It is composed of one physician and one alternate physician elected by the medical staff of each member hospital, and a representative of each county medical society.

The executive staff is made up of the executive director, a physician who serves on a part-time basis, a full-time associate director, who is also a physician, an administrative assistant, a business manager, a director of nurses (part-time), a public relations director, and secretarial assistants. The executive staff is assisted by consultants in hospital administration, medical education, public health, nursing services, accounting, and purchasing services.

In order to obtain broad interest in the regional medical experiment, several committees emanating from the Board of Directors, Administrator's Conference, and Medical Conference are actively engaged in promoting studies and improvements in their respective fields. These committees initiate their own activities and are assisted in their work by members of the executive staff. The numerous meetings conducted by the committees and the larger conferences have brought the men and women of the rural hospitals into friendly and helpful relationships with medical and lay members of the urban hospitals. This accomplishment has contributed immeasurably to the success of the regional experiment.

HOSPITAL SURVEY

Before offering the member hospitals services concerned with the administration and with professional activities, hospital surveys were conducted by the executive staff. These were primarily concerned with the operation of the hospital, organization, and activities of the governing board and medical staff, and thorough investigation of the functioning of the hospital, department by department. Such surveys were made at the request of the governing board and findings and recommendations were reported only to the board of the hospital concerned. The completed surveys revealed the deficiencies that existed in each member hospital and directed the program that was outlined to improve the services that might assure better medical care.

These surveys revealed not only the inadequacies of the physical plant and certain types of equipment, but it brought to light administrative and professional practices in a number of instances that were not in accord with accepted hospital operation. For example, it was found that medical records, which should be a source of information of the quality of medical care received in the hospital, in many of the member hospitals were inadequate or not used because of: failure of physicians to complete medical records accurately, completely, and within a reasonable length of time; lack of medical record librarians trained to keep, classify and index records properly, and to develop useful statistics from them; and widely varying record systems and nomenclatures. A statistical study of deaths recorded in the hospitals from various causes showed that there was considerable difference in the death rates for the same condition in neighbor-

ing hospitals. Where this occurred over a 3 year period it could be assumed that the professional care, medical and nursing, could well have played a part.

Laboratory and x-ray facilities likewise were not equally satisfactory. These variations were generally due to lack of trained personnel or in some instances to inadequate equipment. Staff organization was given little or no consideration in a few hospitals while in others it was operating in a most successful manner. The information gained from the surveys was transmitted to the directors and staff of each hospital with the hope that some effort would be made to rectify these deficiencies.

DIFFICULTIES ENCOUNTERED

It should be pointed out that any effort to improve medical care in which a central administrative group is involved arouses some suspicion on the part of its constituent members. This was true not only for some of the physicians actively interested in area hospitals, but for some of the hospital administrators. A feeling of insecurity was evident and a fear that local autonomy would be threatened was voiced. As the voluntary, rather than compulsory participation, became thoroughly understood, confidence in the Council and in its objectives was gradually established. Today, after two years of operation, all fear of domination and control has been dispelled and almost unanimous coöperation is the outstanding feature of the Hospital Council's activities.

PLAN OF PROCEDURE — HOSPITAL ADMINISTRATION

Surveys of hospitals and evaluation of existing services provided the blueprints for action that might assist in improving the medical care given in area hospitals. It was evident to those charged with the execution of the experiment that no phase of hospital operation could be overlooked and that all personnel, including hospital boards, administrators, professional staff, and others should be reached in a program to stimulate them to greater awareness of their responsibilities. Simultaneously, efforts were made to reach all groups associated with the operation of the hospital.

Hospital administration in the small hospital varies greatly, depending upon the competency of the administrator. Early in the regional experiment a college credit course in hospital administration was given at the University of Rochester, in which prominent hospital administrators participated. A second, more advanced course in hospital administration was given a year later at the request of those who took the first course. Assistance was given to area hospitals in various administrative departments such as accounting, hospital records, reports, statistics, purchasing, personnel service, nursing and other related services. Employees of the small hospitals were given fellowships for specialized training or consultants were sent to the small hospitals from the large urban hospitals. Institutes were conducted in Rochester for accountants and bookkeepers. An institute for Medical Record Librarians was highly successful and paved the way for a marked improvement in the medical records of area hospitals. Funds available for educational purposes were used in providing fellowships for selected employees in institutions outside of the Rochester area. Significant changes and improvements were brought about in the important field of hospital administration.

PROFESSIONAL ACTIVITIES

Among the first activities undertaken by the medical group was the appointment of a committee of doctors to set up a manual of medical procedures to

guide the individual physician in the performance of his routine duties, both in the interest of the patient's welfare and for the professional reputation of the hospital. This involved a consideration of the minimum qualifications for granting hospital privileges in such fields as surgery, obstetrics, medicine, radiology, and anesthesiology. These model policies are not obligatory but are stimulating staff members to elevate their standards.

To offer the doctor practising in the rural areas assistance from the medical center presents some difficulties. In some instances physicians resent the inference that they need instruction or guidance in their daily problems, while in other situations the fear exists that physicians associated with urban hospitals coming to the small hospital will threaten the relationship that exists between physician and patient. Nevertheless, it is gratifying that the medical staffs of all of the member hospitals invited professional educational assistance from the hospitals in the medical center.

In any experiment conducted to improve the character of medical care in an area it is essential to have reasonably accurate information on the death rates where the kind of care rendered may have played a part. Such a study was prepared by tabulating the deaths in the various hospital areas in the three years prior to the regional experiment. Ultimately, similar studies will be made on the death rates in the same areas to determine what, if any, effect the new educational facilities may have exerted on the medical practice of each community. Information made available to each hospital staff on such diseases as appendicitis, herniotomy, diabetes, prematurity, accidents, etc., brought directly to the attention of each physician how his hospital area compares with comparable institutions in the management of the common medical and surgical procedures.

Obviously the hospital area with a death rate charged to appendicitis that is twice as high as that of a neighboring hospital area should be stimulated to have its staff investigate the diagnostic and surgical procedures practised in that hospital area. Similarly the hospital area in which the death rate of infants under one year of age is twice as high as in a neighboring area, invites a thorough analysis of hospital facilities for the care of the new-born and especially the organization for the care and follow-up of the premature baby. Making these indisputable data available to each hospital staff points out the desirability of improving certain professional services in the hospital and in the community.

The establishment of clinical conferences in the small hospitals was gratefully accepted. Through a medical committee of the Regional Council, monthly staff conferences were arranged in each of the rural hospitals. Eminent physicians in all fields of practice were sent from the medical center to the small hospitals. The visiting clinician spends half a day with the small hospital staff to discuss a number of problem cases and then makes ward rounds with some or all of the staff members. The success of these clinical conferences and the good will established between the small and large hospitals has more than justified this procedure.

The coöperation of physicians with teaching ability has been most helpful to the program. Such men are very willing to participate, although distances of 100 miles or more are often involved and travel conditions throughout the region during the winter months are far from pleasant.

POSTGRADUATE COURSES

During the early part of the Regional Hospital Council's existence, staff discussions centered about plans for accelerating postgraduate medical educational

opportunities. The program of clinical conferences was a definite success. Seeking other means to meet the needs of physicians outside of the city, the staff turned to "refresher" courses. Inasmuch as the busy doctor in the small town or in the country finds it difficult to leave his practice for long periods, short courses of one week's duration were provided in the larger hospitals and at the Medical School in Rochester. Competent instruction was provided and material of immediate value to general practitioners was presented. The courses were designed to combine clinical and didactic teaching, with an opportunity to discuss problems with persons well qualified in the field.

The content of the courses was to be centered around common problems and procedures in diagnosis and treatment. Thus far, 6 courses have been conducted, with an average attendance of 20 physicians, most of whom came from the hospitals outside of Rochester. The courses have served not only as an educational contribution to those who attended, but strengthened the friendly relations between the physicians living in the smaller communities and the physicians, many of whom are specialists, identified with the hospitals in the medical center. This type of postgraduate teaching will be continued and perhaps extended into new fields.

INTERN AND RESIDENT ROTATION

None of the area hospitals except the large institutions had a resident staff. Because a resident staff is of great and obvious value to the hospital, the Regional Council undertook a program of rotation of a series of interns and residents from the large city hospitals to the smaller hospitals for periods of from 2 to 3 months. This program was approved by the Council on Medical Education and Hospitals of the American Medical Association. The rotation of interns or residents has been in progress for 2 years in 1 hospital and for a shorter period in 3 other hospitals. This rotation of house staff from the parent hospital in the medical center to the small hospitals of about 100 beds has proved beneficial to the area hospital. Difficulties naturally arise on the part of both parent and recipient institution but these obstacles are gradually being overcome. The experience gained by the intern or resident in the small hospital has proved valuable. A better understanding of the problems of the rural area is obtained by the young doctor, and the presence of a resident physician in a small hospital stimulates the visiting staff to a keener interest in patient care. Improvement in hospital records is apparent, autopsies have increased and routine staff rounds have been instituted. The parent hospital supervises the training of the resident while in the small hospital, and a committee of the rural hospital is held responsible for the proper use of the rotating intern or resident. Extension of this program to more rural hospitals and greater participation on the part of the small hospital staffs should ultimately lead to better hospital practices.

NURSING SERVICES

In the field of nursing the Council has a number of direct interests. Its nursing director has concerned herself primarily with the quality of nursing care in the region, while other staff members, through assistance in student nurse recruitment campaigns, advisory services in connection with the training of auxiliary workers, and studies of nursing hours, have been active in increasing the quantity of nursing care.

The Council has established 3 projects in the field of postgraduate education; postgraduate fellowships for members of the nursing staffs of member hospitals; regionalized nurses' meetings of a professional nature; and expansion of the Department of Nursing Education

at the University of Rochester. In addition to the direct services which have been made available to the nursing divisions of the member hospitals, studies are being conducted on patterns of nursing care in which subsidiary workers assume a much more important role.

CONSULTATION SERVICES

In the fields of radiology, pathology, and anesthesiology, not all of the small hospitals were properly staffed. Where possible, consulting services emanating from the medical center are offered in these fields. Significant assistance has been provided by the Council through consulting service in developing radiology departments, determining needs, and advising as to equipment needed. In one hospital, where this was done in 1947, a saving of $6,000 was realized over the amount that the hospital had planned to pay for equipment. The saving resulted from definite recommendations as to equipment required to meet the hospital's needs, and the elimination of unnecessary items which the hospital had planned to buy.

JOINT PURCHASING SERVICE

From its beginning, the Council sensed that organization of hospitals into a group would make possible joint buying at substantial savings. The subject of joint purchasing was studied thoroughly by the Purchasing Committee of the Administrator's Conference, and after a number of surveys and adequate discussion, the Administrator's Conference and the Board decided to embark on a program of this kind. To facilitate this program, member hospitals agreed on specifications and standards for certain items such as linens, and planned that a single order representing the needs of all participating hospitals for a 6 or 12 month period be placed at one time. In this connection it is hoped that inventory and budgetary practices in the smaller hospitals will be improved. Under the present system there is no compulsion to purchase through the Council. Hospitals may make such purchases as they choose through the Council and others wherever they like. The Council acts simply as a central purchasing office, receiving orders from its members and turning them over to suppliers for shipment directly to the hospitals. The Council pays cash as bills come in, in turn billing the hospital receiving the goods. The participating hospitals can make substantial savings by utilization of this service.

REGIONAL BLOOD BANK

In some of the meetings of the medical conference, composed of staff representatives of each of the member hospitals, attention was called to the fact that blood to be used for transfusions was not always available and rare types of blood were difficult to obtain when needed. Consequently blood therapy was not utilized in indicated cases as frequently as in larger hospitals where blood banks could be maintained. In cooperation with the large Rochester hospitals already operating separate blood banks it was decided to develop a regional blood bank to serve all of the hospitals in the Rochester Region. Utilizing the studies and plans made by the staff representatives of the member hospitals and with the support of the 11 county medical societies, a plan was finally evolved for the operation of such a bank. At this stage the American Red Cross expressed interest in establishing regional blood banks in various parts of the country and considered the Rochester region an excellent place in which to initiate its program. The Red Cross accepted full administrative and financial responsibility for this regional blood program and in a short time brought to reality what had been a hope on the part of physicians and hospital people throughout the Council's region for some time. For about a year this regional

bank has been operating in a most satisfactory manner and thereby offers patients, treated in any of the area hospitals, adequate amounts of blood wherever indicated. This service has been greatly appreciated, especially by the communities never before served in this way.

PLACEMENT OF PHYSICIANS

With full knowledge of the personnel needs in the region, it has been possible to place young physicians in areas where well trained physicians are urgently required. As the experiment develops and the advantages of rural practice under more favorable hospital conditions become known to young doctors, it is hoped that the placement of physicians will be of assistance in the needy areas.

Insufficient time has elapsed to evaluate the efforts to assist the rural physicians in their home and hospital practice. It is quite clear to the executive staff of the Council that the practising physician in many small communities has rendered excellent medical care, in and out of the hospital. The advantages and facilities are generally inferior to those of the urban area and difficulties arise which cannot be easily overcome. Some of these deficiencies can be corrected by the small hospitals themselves, others can be solved by closer association with the medical center.

The urban hospitals and the medical school have the facilities and the personnel to assist the small institutions within a certain area if they are willing to make them available. It is equally important for the small hospitals to seek these services. If an effective voluntary relationship can be established it will not only assure better small hospital functioning but also will improve medical care in the local community.

New Mental Health Project in Wellesley, Mass.

It has been announced that, under the combined auspices of Harvard School of Public Health, Harvard Medical School, Harvard Department of Social Relations, Massachusetts General Hospital, and the Wellesley Community Mental Health Committee, a mental hygiene combined service-research organization has been established in Wellesley with funds from the Grant Foundation for a five year period. Dr. Erich Lindemann, Lecturer on Mental Health in the Harvard Department of Public Health Practice, will direct the program and supervise two field teams, one a service team composed of two psychiatrists, a social worker and a clinical psychologist, and a research team composed of a social scientist and a social psychologist. The Wellesley project is being initiated as a community health service, accompanied by a prolonged study of the effect of social relationships in the community, with the family as the study unit.

Improving the Quality of Medical Care

Sound Principles of Administration *

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IN general, the principles of administration relating to quality of care are equally applicable to any medical care program, whether governmental or nongovernmental, tax supported, or supported by prepayment contributions.

The quality of medical care is primarily of importance to the recipients of services—the patients. It is in their interests I speak, and it is their wishes I am trying to express, rather than considering principles of administration in the abstract.

In order to emphasize the importance of the individuals to be served, I will present some of the principles of administration which I believe most individuals would desire in any medical care program.

A. THE SCOPE OF THE PLAN

1. I would want the plan to provide all professional and auxiliary services, hospital, and convalescent home care that I might need and that could be made available. I would not want anything to do with a plan that is concerned only with assuring payment to surgeons for their operations or providing only fragments of the services required.

B. THE PERSONNEL

1. I would want the administrative staff and all professional personnel of my medical care plan to be concerned always with the promotion of positive health, the prevention of illness and disability, as well as the treatment of disease and rehabilitation, for each and every one of us covered by the plan.

2. I would wish to have my medical care plan provide, or pay, for services rendered only by professional personnel recognized as competent in their respective fields. I would hope that my medical care plan would prevent me, if possible, from seeking professional help from individuals who are not competent to provide it.

3. I would wish that those persons who set standards for professional personnel would consider it important that the physicians be as much concerned with environmental and social causes of illness as with their biological and other causes.

4. I would like to have my medical care plan provide physicians and other personnel who are as interested in the long-time treatment of my child with cerebral palsy as they are interested in the dramatic response I made to treatment with a new antibiotic.

5. I would wish the physicians to be selected from among those who would treat me at all times as an individual, giving me as much personal attention as they would wish for a member of their own family. I would not like to be "Case No. 329," and be given a brush-off as one of 50 patients being seen that morning.

6. I would want to see my physician in an attractive office or clinic, where

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there are comfortable chairs, because I dislike basements of courthouses and hard benches.

7. I would like my office visits to be by appointment, for I dislike waiting for hours on a hard bench *or* in a comfortable chair.

8. I would like to be able to change my physician if I became dissatisfied with him or if he thought I would do better under the care of another physician.

9. I would wish my medical care plan to afford its professional personnel, wherever feasible, opportunities for working in groups—with easily accessible diagnostic equipment they may need—in order that they may easily consult with each other, and in order that I may not need to go from one place to another for a series of consultations or laboratory tests.

10. I would want to know how, when, and where I could get medical care in an emergency, whether such care is required at home, office, or hospital.

11. And, since what is good medical care today may not be good enough a few years from now, I would wish to have the personnel in my medical care plan have regular opportunities for postgraduate training and to be continually considering ways and means of bringing to us—the patients—the most recently acquired knowledge in this great and complex field of human endeavor.

C. THE FACILITIES

1. I would wish to have my hospital care only in institutions which meet national standards of performance, and my medical care plan should not provide care in hospitals which do not meet such standards.

D. THE ADMINISTRATIVE MACHINERY

1. I would not want to be told at any time that I was not eligible for care because of the place of my legal residence, or because my skin was not white, or because my income was up or down during a given year.

2. I would not wish to have red tape, or tape of any other color, delay my obtaining any services I need under my medical care plan.

3. I would want my taxes or prepayment contribution to cover all costs of all services provided, and I would not want the physicians or hospitals to ask me for more money because my case was unusual, or because they did not think the plan paid them enough.

4. I would want the method of payment to physicians and hospitals to be of a type that would prevent the possibility of financial considerations influencing the clinical decisions of the physicians or hospitals.

5. I would want the administrator of the plan and his staff to be fully competent to develop the best medical care plan possible, and to improve it year by year on the basis of experience. I would want this staff to be selected on the basis of merit alone, to serve only the best interests of the community and not the selfish interests of any special group.

6. I would want a group representing those of us served by the plan, and those providing services, to be given ample opportunity, at regular intervals, to confer with the administrator and his staff and to express our viewpoints fully.

7. I would like to have an impartial appeal board established to hear my complaints about the plan, or complaints of the professional staff providing services.

8. And last, I would like to have the amounts of money paid the administrator and his staff, and the professional personnel, high enough to attract and hold in rural or urban areas the best people available, and to have working conditions and other factors conducive to their deriving satisfaction from their work. I would not want bargain counter medical care.

I have stated no new principles. We

have all talked about one or more of them on many occasions. It may be new to have them presented together, and from the viewpoint of the patient. At this time, when many public and voluntary medical care programs are developing in this country, it might be of interest to the administrator and the public to evaluate each program on the basis of these principles.

Blackwell Citations to 12 Women

On January 23, 12 women distinguished in medicine received Elizabeth Blackwell centennial citations from Hobart and William Smith Colleges, Geneva, N. Y. This event celebrated the 100th anniversary of the graduation from the medical department of what is now Hobart College, of Elizabeth Blackwell, the first woman in the world to receive the M.D. degree, and the founder of the New York Infirmary for Women and Children for the training of women physicians.

The women receiving the citations were nominated by the deans of American and Canadian medical schools, by several professional bodies, and by other medical leaders. They are:

Gerty T. Cori, Research Associate, Washington University School of Medicine, St. Louis, Mo., third woman to receive Nobel Prize in Science. For work in biochemistry and pharmacology.

Margaret D. Craighill, Chief of Service in charge of medical care of women veterans, Winter Veterans Administration Hospital (Menninger Psychiatric Clinic), Topeka, Kan. For military medicine.

Martha May Eliot, Associate Chief, U. S. Children's Bureau. First woman president of the American Public Health Association. For public health.

Therese Bertrand Fontaine, Paris, France. First French woman medecin des hopitaux.

Alice Hamilton, Consultant on industrial toxicology for U. S. Department of Labor and U. S. Public Health Service. First woman appointed to medical faculty at Harvard. For industrial medicine.

Elise S. L'Esperance, assistant professor, Department of Preventive Medicine, Cornell University Medical College; President, American Medical Women's Association. First woman to hold rank of Assistant Professor in Cornell University Medical College. Planned and established first Cancer Prevention Clinic in 1937. For work in cancer prevention and pathology and leadership of women in medicine.

Helen Marion Macpherson Mackay, F.R.C.P., London, England. First woman to be elected to the Fellowship of the Royal College of Physicians. An internationally known pediatrician.

Helen MacMurchy, C.B.E., Toronto, Canada. Worked with Sir William Osler at Johns Hopkins in fields of child welfare and public health. Chief of Division of Child Welfare, Dominion of Canada Department of Health, 1920–1934. For child welfare and public health.

Helen V. McLean. Developed Institute for Psychoanalysis in Chicago, and contributed greatly to understanding of psychiatric problems relating to pressure groups, especially Negroes. For psychiatry.

Florence R. Sabin. Had distinguished career at Johns Hopkins and Rockefeller Institute. Since so-called "retirement" conducting campaign for improvement of public health in Colorado. For medical research.

Helen B. Taussig, Associate Professor of Pediatrics, Johns Hopkins. Member of the famed Taussig-Blalock "blue baby" team of doctors. For clinical medical research.

Priscilla White, Physician, New England Deaconess Hospital and Faulkner Hospital, Boston, and instructor pediatrics, Tufts College Medical School. Has carried on extensive work in field of diabetes, giving special attention to care of diabetic children, diabetic mothers, and inheritance of diabetes. For work in diabetes.

Drs. Eliot, Hamilton, and Sabin have been active in the affairs of the A.P.H.A. Both Dr. Eliot and Dr. Hamilton have received Lasker Awards, the former in 1948, the latter in 1947. Dr. Sabin was granted honorary fellowship in 1948.

Studies of the Combined Action of Antibiotics and Sulfonamides*

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RECENT advances in the chemotherapy of disease have proceeded along two main lines of endeavor. An intensive search is being made to discover new antibiotic agents, and numerous studies are under way to explore the possibilities of combining antibiotic agents with each other and with various sulfonamides in order to provide more effective remedies. In addition to penicillin and streptomycin, extensive clinical investigations are being conducted with polymyxin B. bacitracin, aureomycin, and chloromycetin. Anticipating that eventually some of these antibiotics may be used in combinations, and with other chemotherapeutic agents, the present study was initiated to determine what combinations might be effective. Combinations of these agents might have three possible results: the effect of the mixture may be simply additive; it may be synergistic, that is, the mixture would have a greater effect than the sum of the effects of the active ingredients; and finally, the reverse could occur and the mixture produce a lesser effect than the sum of the effects of the active constituents. The simultaneous use of more than one therapeutic agent in combating infections is designed to bring about a more rapid and effective eradication of the causative agents, to prevent the development of resistant variants, and possibly to extend the range of antibacterial activity. More than one chemotherapeutic agent might be used also in infections caused by more than one organism.

Synergistic or additive action of drug mixtures has been reported by Foley and Lee (1948) (gramicidin and penicillin); Thomas and Hayes (1947) (penicillin and sulfathiazole); Stewart (1947) (penicillin-sulfonamide); and Kolmer (1948) (penicillin-streptomycin-sulfonamides-arsenicals and bismuth compounds). The present work deals with the action of various mixtures containing penicillin, streptomycin, polymyxin, bacitracin, aureomycin, chloromycetin, sulfathiazole, sulfadiazine and sulfamerazine on *Salmonella typhosa, in vitro* and *in vivo*.

METHODS

In vitro—Dilutions of the antibiotics and the sodium salts of the sulfonamides tested were made in distilled water to the desired concentration. Two ml. quantities were placed in test tubes and 8 ml. of a broth (penassay broth, Difco) dilution of *S. typhosa* containing from 200,000 to 500,000 organisms per ml. added. The tubes were incubated at 37° C. and colony counts made at 2 hours and 5 hours.

In vivo—White mice were injected intra-abdominally with 0.6 ml. of a 6 hour culture of the same strain of *S. typhosa* used above, and immediately thereafter received by the same route

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a single injection of the drug or drug combination under test. Twenty mice were used for each concentration of each drug or mixture, and deaths recorded at the end of 24 and 48 hours. When significant results were obtained, from 50 to 300 mice were used for retesting the effective mixture in order to obtain statistically significant data.

EXPERIMENTAL

Each individual antibiotic or sulfonamide used was first tested over a wide range of concentrations, both *in vivo* and *in vitro*, to determine its individual effects. Combinations were then prepared containing the individual drugs in a concentration which, when used singly, had a slight but definite protective or inhibitive effect. This is illustrated by an example in Table 1 for penicillin *in vitro*.

The value of 1.25 u./ml. of penicillin was selected for the *in vitro* experiments and various concentrations of the other drugs added for test purposes. The concentrations of the various drugs used in the *in vivo* experiments are given in Table 6.

In Table 2 the drug mixture and concentrations showing synergism *in vitro* are indicated by a + sign. As was expected, polymyxin and streptomycin, both highly active against Gram-negative bacteria, showed synergistic activity with the largest number of the other drugs. Penicillin fell next in line, showing a synergistic effect with three other antibiotics. Aureomycin, which is active against certain Gram-negative bacteria, showed synergism with penicillin and polymyxin. The only antibiotic which showed any synergistic effect with the sulfonamides tested was streptomycin, which was active when mixed with sulfadiazine and somewhat less so when combined with sulfathiazole. The degree of synergism observed in these experiments, using *S. typhosa* as the test organism, did not indicate any marked advantage in the use of the various effective combinations over that which was obtained by a simple increase in amount of the more active drug in the mixture.

TABLE 1

Effect of Penicillin on the Growth of S. typhosa in vitro

Concentration of Penicillin u./ml.	*Log of Numbers of Organisms*	
	2 hours	*5 hours*
0	6.3	8.25
1.25	5.34	5.55
2.5	4.7	4.05
5.0	4.08	1.45

TABLE 2

In vitro Effect of Various Drug Combinations on S. Typhosa

Drug	*Concentration*	*Concentration of Drug*							
		0.06 Mcg. Aureomycin	*2 Units Bacitracin*	*0.05 Mcg. Chloromycetin*	*1.25 Units Penicillin*	*0.03 Mcg. Polymyxin*	*0.3 Mcg. Streptomycin*	*500 Mcg. Sulfadiazine*	*250 Mcg. Sulfamerazine*	*500 Mcg. Sulfathiazole*
Aureomycin	0.06 mcg.	..	0	0	+	+	0	0	0	0
Bacitracin	2 units	0	..	0	0	+	0	0	0	0
Chloromycetin	0.05 mcg.	0	0	..	0	0	0	0	0	0
Penicillin	1.25 u.	+	0	0	..	+	+	0	0	0
Polymyxin	0.03 mcg.	+	+	0	+	..	+	0	0	0
Streptomycin	0.3 mcg.	0	0	0	+	+	..	+	0	•
Sulfadiazine	500 mcg.	0	0	0	0	0	+	..	..	..
Sulfamerazine	250 mcg.	0	0	0	—	0	0	..	..	..
Sulfathiazole	500 mcg.	0	0	0	0	0	•	..	..	..

+ = Synergism
0 = Additive
— = Less than additive
• = 0 at 500 mcg./ml., + at 1000 mcg./ml.

In the *in vivo* studies nine drugs were utilized: penicillin, streptomycin, polymyxin, aureomycin, chloromycetin, bacitracin, sulfamerazine, sulfadiazine, and sulfathiazole. All of these drugs were tested for their protective effect in mice in several concentrations in order to ascertain that dose of drug which gave a minimal protective effect. The results obtained are given in Table 3.

From the data in this table, suitable drug concentrations were selected and then tested in combination with the other drugs listed. Certain results contained in this table should be noted. The approximate CD_{50} of the drugs tabulated are: penicillin 250 u. (150 mcg); streptomycin 3 mcg.; polymyxin 2 mcg.; aureomycin 40–50 mcg.; and chloromycetin 1,000 mcg. It was not possible to determine a CD_{50} for the sulfonamides because of their toxicity. However, since the amounts of the drugs utilized in the combined therapy were those which gave only slight but definite protection, it was not necessary to obtain a CD_{50} for the sulfonamides. In Table 4 there is given an example of the manner in which the observed combined action is expressed. A negative sign indicates an antagonistic action; a positive sign a synergistic action while the numeral simply indicates the magnitude of these effects. If the magnitude of the differences was not great the effect was considered merely additive.

TABLE 3

Protective Effect of Various Drug Concentrations on S. Typhosa Infection in Mice

Antibacterial Agent	*Amount*	*Per cent Protected*
Penicillin	10 units	0
	20 "	2
	25 "	7
	50 "	8
	100 "	9
	200 "	16
	250 "	50
	400 "	50
	500 "	77
	1,000 "	84
Streptomycin	0.5 mcg.	0
	1 "	11
	2 "	33
	3 "	52
	4 "	86
	5 "	73
	10 "	80
	50 "	100
Polymyxin	1 mcg.	8
	2 "	59
	5 "	71
	10 "	95
	20 "	100
Aureomycin	10 mcg.	13
	20 "	13
	25 "	13
	40 "	32
	50 "	65
Chloromycetin	0.1 mg.	10
	0.5 "	28
	1.0 "	47
Bacitracin — Ineffective up to toxic concentrations		
Sulfamerazine	50 mcg.	40
	125 "	30
	250 "	15
Sulfathiazole	50 mcg.	30
	100 "	0
Sulfadiazine	50 mcg.	30
	100 "	10

Thus it will be noted that 20 units of penicillin alone protected only 2 per cent of the animals while 2 mcg. of streptomycin protected 33 per cent for an expected additive protection of 35 per cent.

TABLE 4

Example Showing Method of Expressing in vivo Results

Action	*Antibacterial Agent*	*Conc.*	*Per cent Protected*	*Expected Additive Action*	*Observed Combined Action*
Antagonistic	Penicillin	20 u.	2		
	Streptomycin	2 mcg.	33		
	Combined		5	35	—30
Additive	Penicillin	100 u.	9		
	Streptomycin	10 mcg.	80		
	Combined		90	89	+ 1
Synergistic	Penicillin	200 u.	16		
	Streptomycin	2 mcg.	33		
	Combined		88	49	+39

When these two drugs were given at these concentrations simultaneously, only 5 per cent of the mice were protected. This combination of penicillin and streptomycin is therefore antagonistic and the magnitude of this antagonism is expressed by the numeral —30 obtained by subtracting the additive from the combined effects of these two drugs. In Table 5 is given the

TABLE 5

Expected and Observed Protective Action of Various Drug Combinations

		Expected Additive Action	*Observed Protection*	*Observed Combined Action*
Penicillin plus Streptomycin				
50 u.	1 mcg.	35	5	—30
50	2	41	25	—17
50	3	60	55	— 5
100	1	20	28	+ 8
100	3	61	80	+19
200	1	27	65	+38
200	2	49	88	+39
200	5	89	95	+ 6
Penicillin plus Aureomycin				
50 u.	10 mcg.	21	5	—16
50	25	21	20	— 1
50	50	73	75	+ 2
100	10	22	5	—17
100	50	74	85	+ 9
200	50	81	85	+ 4
Penicillin plus Polymyxin				
100 u.	1 mcg.	15	5	—10
100	2	65	35	—20
200	1	22	10	—12
200	2	72	30	—42
Penicillin plus Sulfadiazine				
50 u.	50 mcg.	38	30	— 8
100	50	39	35	— 4
200	50	46	75	+29
Streptomycin plus Aureomycin				
1 mcg.	10 mcg.	24	20	— 4
1	20	24	15	— 9
1	40	44	43	— 1
1	50	76	75	— 1
Streptomycin plus Sulfadiazine				
0.5 mcg.	50 mcg.	30	60	+30
1.0	50	41	60	+19
2.0	50	63	85	+22
Sulfadiazine plus Aureomycin				
50 mcg.	10 mcg.	43	35	— 8
50	40	64	50	—14
Sulfathiazole — 50 mcg. plus:				
Bacitracin	300 u.	35	20	—15
Polymyxin	1 mcg.	38	45	+ 7
	2 mcg.	89	75	—14
Penicillin	100 u.	39	40	+ 1
	200 u.	46	65	+19
Streptomycin	1 mcg.	41	75	+34
	2 mcg.	63	85	+22
Aureomycin	10 mcg.	43	40	— 3
	40 mcg.	62	75	+13
Chloromycetin	0.5 mg.	58	80	+22
Sulfamerazine — 50 mcg. Plus:				
Polymyxin	1 mcg.	48	50	+ 2
	2 mcg.	99	85	—14
Streptomicin	1 mcg.	51	80	+29
Penicillin	50 units	48	85	+37
	100 units	49	90	+41
Chloromycetin	0.25 mg.	50	85	+35
	0.50 mg.	68	90	+22

additive effect calculated from the protection afforded by the drugs injected separately and that observed following the administration of the mixtures. The last column is simply the difference between the two.

The penicillin-streptomycin mixture showing the greatest degree of synergism was obtained by combining 200 u. of penicillin with 1 or 2 mcg. of streptomycin. This combination markedly increased the survival rate of the mice injected. The experiments using combinations of penicillin and streptomycin illustrate a point which has been frequently observed during the course of this work, namely, that in order to demonstrate a significant synergistic effect it is necessary to employ proper concentrations of the drugs. Significant synergism can only be demonstrated within certain narrow limits of drug concentrations. The combinations of penicillin and aureomycin utilized did not show any significant synergism. Penicillin and sulfadiazine produced a synergistic effect when 200 u. of penicillin and 50 mcg. of sulfadiazine were combined. Penicillin and polymyxin showed a marked antagonistic action especially when utilized in concentrations of 200 u. and 2 mcg. respectively. Assays showed that no destruction of either drug occurred before the mixture was injected. This marked antagonism also occurred with other drug-polymyxin mixtures which are not recorded in the table. Streptomycin-aureomycin combinations in the doses utilized produced only what were considered additive effects. Streptomycin and sulfadiazine showed synergism at all concentrations tested. Sulfathiazole and sulfamerazine produced a synergistic effect when combined with penicillin, streptomycin, or chloromycetin, while only an additive effect was obtained with the other antibiotics tested in combination with these sulfonamides.

It is apparent by inspection of Tables 2 and 5 that certain drug combinations often give different results when tested by the two methods used. Thus, both penicillin and chloromycetin combined with two sulfonamides tested by the mouse protection method showed synergism, while the *in vitro* test failed to demonstrate anything more than an additive action. Similarly, mixtures of penicillin and polymyxin, or streptomycin and polymyxin, show antagonism only when tested *in vivo*, while a synergistic effect was demonstrated *in vitro*. The results obtained with the various chemotherapeutic mixtures utilizing *S. typhosa* as a test organism *in vitro* and *in vivo* illustrate the difficulties involved in attempting to utilize an *in vitro* method as a sole basis for clinical trial.

SUMMARY

1. Combinations of aureomycin, bacitracin, chloromycetin, penicillin, polymxin, streptomycin, sulfadiazine, sulfamerazine, and sulfathiazole were tested for possible synergistic action utilizing *S. typhosa* as a test organism, *in vitro* and *in vivo*.

2. Of the combinations tested *in vitro*, polymyxin showed a synergistic effect with aureomycin, bacitracin, penicillin, and streptomycin; penicillin with aureomycin and streptomycin; and streptomycin with sulfadiazine and sulfathiazole.

3. Of the combinations tested *in vivo*, penicillin produced a synergistic effect with streptomycin, sulfadiazine, aureomycin, sulfamerazine, and sulfathiazole; streptomycin with sulfadiazine, sulfamerazine, and sulfathiazole; and chloromycetin with sulfamerazine and sulfathiazole.

4. Although a synergistic action was demonstrable with a number of combinations of the chemotherapeutic agents tested, in only 50 per cent of these combinations did the *in vitro* method correlate with *in vivo* tests.

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Importance of Antigenic Composition of Influenza Virus Vaccine in Protecting against the Natural Disease*†

Observations during the Winter of 1947–1948

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As is now well known, convincing evidence was gathered in 1943–1944,[1–3] and again in 1945–1946 [4, 5] indicating that susceptibility to epidemic influenza could be modified by subcutaneous vaccination. The procedure found to be effective on those two occasions was repeated again in the winter of 1946–1947.[6] This time, however, it was without demonstrable effect.

The failure of vaccination to influence susceptibility in the spring of 1947 was readily explained by the finding that the virus then in circulation was significantly different antigenically from the virus-antigens included in the vaccine.[6–11] It is of special interest, too, that the 1947 virus, although similar to a strain isolated in Australia in the fall of 1946,[12] differed from others that had been isolated in previous outbreaks.

These experiences emphasized the desirability of continuing the field studies of vaccination against influenza for evaluation in future epidemics. The matter was discussed at a meeting of a committee of the Army Epidemiological Board and of representatives of the Office of the Surgeon General of the Army. The members of the committee were Dr. Colin M. MacLeod, Dr. Thomas Francis, Jr., Dr. John H. Dingle, Dr. Joseph E. Smadel, and Dr. Jonas E. Salk. The representatives of the Office of the Surgeon General were Col. Tom F. Whayne, Lt. Col. Frank L. Bauer, and Lt. Col. Arthur Long. At this meeting, plans were inaugurated for carrying out field studies in the Army, under the auspices of the Commission on Influenza. The observations reported here comprise the results of the first year's effort in a program that will be continued over a number of years, and until the required information is obtained.

PLAN OF THE STUDY

It is desired to explain the limiting circumstances that prevailed at the time of planning the 1947–1948 study. Before this particular investigation was contemplated the policy of the Army had already been adopted to vaccinate

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† This investigation was conducted under the auspices of the Commission on Influenza, Army Epidemiological Board, United States Army, Office of the Surgeon General, Washington, D. C.

all troops in the fall or early winter of that year. A new supply of vaccine was ordered and it was to contain the strain of virus that had by-passed the vaccine used in the preceding winter and spring. Because the quantity of new-formula material that could be promised for delivery in the fall was insufficient to supply the entire Army, it had been decided to supplement this limited amount with old-formula material to be used in certain specified areas.

Under the circumstances then prevailing the inclusion of an *unvaccinated* control group could not be considered in any trials that were to be carried out in the Army. The only kind of a study that could be conducted was one in which a comparison would be made between groups given the *two different* vaccines. The two vaccine preparations were the same in so far as both contained the Type A and Type B components, but they differed in respect to the presence or absence of the new component that is now referred to as Type A-prime.

It is obvious that a study of this sort would yield information on the efficacy of vaccination only if the virus operating during the period in question were similar to the one present in the new vaccine and absent from the other. Although this plan was far from ideal, it did serve the purpose of initiating the field trials in the Army without further delay and offered the opportunity to gain experience that would be of value the following year.

PROCEDURE

Accordingly, arrangements were made for a study to be conducted at Fort Dix, New Jersey. Approximately 60 per cent of the strength of this induction and training center of 15,000 were trainees who remained for approximately 13 weeks; the remainder were cadre and personnel of the post detachments.

The scheme for distributing the two vaccines equally in the population was to give the *old-formula* material to men with serial numbers ending in *odd* digits and the *new material* to men with numbers ending in *even* digits. On November 14, 1947, all of the trainees and cadre of the training companies were inoculated according to this scheme, and in the following week the detachments were similarly treated. Subsequently, the same plan was employed in the treatment of all newly formed companies. Influenza vaccine was administered along with the other immunizations at the time of medical processing, thereby maintaining the division of the entire post into two groups. Great care was exercised to maintain the distribution of the vaccines according to the serial-number scheme and to reduce exceptions and error to a minimum. This procedure was continued until April 1, 1948.

The two vaccines used in this study were prepared commercially. The *old-formula material* was from a single batch of vaccine prepared for use in the winter of 1945–1946.[4] The virus in this vaccine was concentrated by the method of red cell adsorption-elution.[13] At the time of use in this study the vaccine was more than two years old; and this was about one year beyond the expiration date. The strains of virus in this vaccine were PR8 and Weiss, Type A, and Lee, Type B. The *new-formula material* was from a single batch, freshly prepared just a few months prior to use in this study. Concentration of virus was affected by Sharples centrifugation,[14, 15] and the strains represented were PR8 (Type A), FM1 (Type A-prime) and Lee (Type B).

Even though the two vaccines differed in strain composition it was still necessary to evaluate serologically the effect of each in terms of their different antigenic components. This was done by comparing antibody titers in serum collected before and again two weeks

TABLE 1

Geometric Mean Antibody Titers Before and Two Weeks After Vaccination in Subjects Inoculated with "Old-Formula" and "New-Formula" Influenza Virus Vaccine*

Antigen in Serological Test	"Old-Formula" Vaccine (142 Subjects)			"New-Formula" Vaccine (81 Subjects)		
	Pre-Vacc.	Post-Vacc.	-Fold Change	Pre-Vacc.	Post-Vacc.	-Fold Change
PR8	70	536	7.7	65	440	6.8
LEE	80	880	11.0	75	640	8.5
FM1	68	163	2.4	73	438	6.0

"Old-Formula Vaccine" was from the supply prepared for use in the winter of 1945–1946 and had an expiration date of December, 1946. It was administered to these subjects on November 14, 1947. This vaccine contained the PR8 and Weiss Strains of Type A and the Lee Strain of Type B virus.

"New-Formula Vaccine" was freshly prepared just a few months prior to use in November, 1947. It contained the PR8 and FM1 strains of Type A and the Lee strain of Type B virus.

* Antibody titers (agglutination-inhibition) are expressed in terms of the dilution of serum inhibiting 4 units of hemagglutinin.

after inoculation. The data, for groups of individuals given the different vaccines, are summarized in Table 1 in terms of the geometric mean titer as well as the -fold increase as measured with three different antigens. Although the *old-formula vaccine* induced a distinct elevation in antibody level for the PR8 and Lee antigens, there was only a slight increase in antibody for the FM1 antigen. The *new vaccine* was distinctly more effective than the *old* in terms of the antibody response measured with the FM1 antigen. It is interesting to note that the older preparation, although one year beyond its expiration date, appears to have induced a somewhat better response than the new material to the PR8 and Lee components.

The antigenicity of the two vaccines was also tested in mice and they were found to be equally effective with respect to the PR8 (Type A) and Lee (Type B) components. As was to be expected the *old-formula vaccine* failed to induce the formation of any antibody for the FM1 strain (Type A-prime), while the new material was as effective in the formation of antibody for FM1 as it was for the PR8 and Lee strains.

OBSERVATIONS

In planning the clinical and epidemiological aspects of the study it had been decided to base any evaluation of vaccination effect upon the number of cases of respiratory disease hospitalized or put on quarters. Although the limitation of this procedure is thoroughly appreciated it was believed to be sufficiently reliable to evaluate the crude data obtained in this manner, particularly since the groups were to be equal in size and were to be treated in the same way. Moreover, an adequate sampling of cases for serological study was to be made.

After the study was begun careful records were kept of all admissions to hospital or to quarters for reasons of respiratory disease. In addition, records were kept of the number of admissions to hospital from the odd and even serial-numbered groups for other illnesses as well.

Before presenting the data it is desired to point out that proven cases of influenza among patients in Army hospitals have usually been found among those diagnosed as "nasopharyngitis," or occasionally as "laryngitis" or "bronchitis." Even though the systemic component of the illness may predominate and may strongly suggest the diagnosis of influenza, this diagnosis is not used and preference is given to the terms referring to the area of the

TABLE 2

Tabulation of Number of Cases of Nasopharyngitis, Laryngitis, and Bronchitis that Occurred Each Week in "Odd" and "Even" Groups Given "Old-Formula" and "New-Formula" Vaccine, Respectively. Fort Dix, New Jersey, 1947–1948

			Number of Cases *		Cumulative Total		Difference
Month	W/E	Mean Strength	Odd	Even	Odd	Even	Odd-Even
December	5	13,226	7	5	7	5	+ 2
	12	12,517	14	20	21	25	− 4
	19	12,422	16	8	37	33	+ 4
	26	12,448	2	0	39	33	+ 6
January	2	11,900	2	9	41	42	− 1
	9	12,192	15	9	56	51	+ 5
	16	12,916	15	16	71	67	+ 4
	23	13,740	40	34	111	101	+10
	30	14,077	48	38	159	139	+20
February	6	14,199	84	65	243	204	+39
	13	14,375	77	63	320	267	+53
	20	14,566	61	49	381	316	+65
	27	14,907	49	47	430	363	+67
March	5	15,108	44	56	474	419	+55
	12	15,541	47	33	521	452	+69
	19	15,639	58	64	579	516	+63
	26	16,216	26	34	605	550	+55
April	2	16,261	39	20	644	570	+74
	9	16,895	10	20	654	590	+64
	16	17,017	17	15	671	605	+66
	23	16,832	18	15	689	620	+69
	30	16,681	32	37	721	657	+64
May	7	16,463	39	24	760	681	+79
	14	15,748	33	23	793	704	+89
	21	15,297	19	21	812	725	+87
	28	13,905	33	25	845	750	+95
June	4	14,016	15	10	860	760	+100
	11	14,131	18	11	878	771	+107
	18	14,152	11	14	889	785	+104
	25	14,579	18	19	907	804	+103
July	2	14,856	16	18	923	822	+101

* Hospitalized or put on quarters

FIGURE 1

Comparison of Weekly Incidence of Nasopharyngitis, Laryngitis and Bronchitis in Two Groups Given Old-formula and New-formula Influenza Virus Vaccine

FORT DIX, N. J., 1947-48

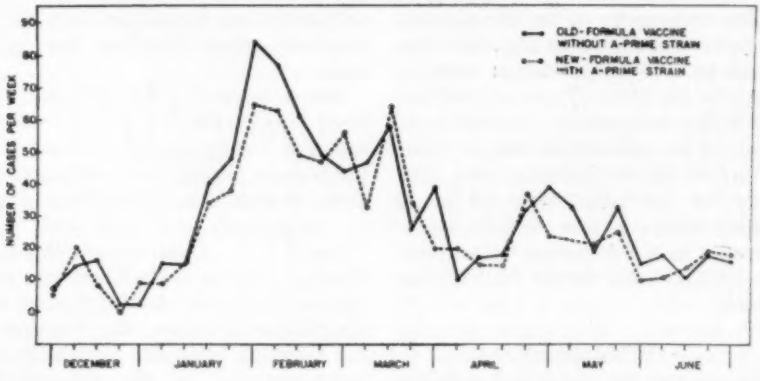
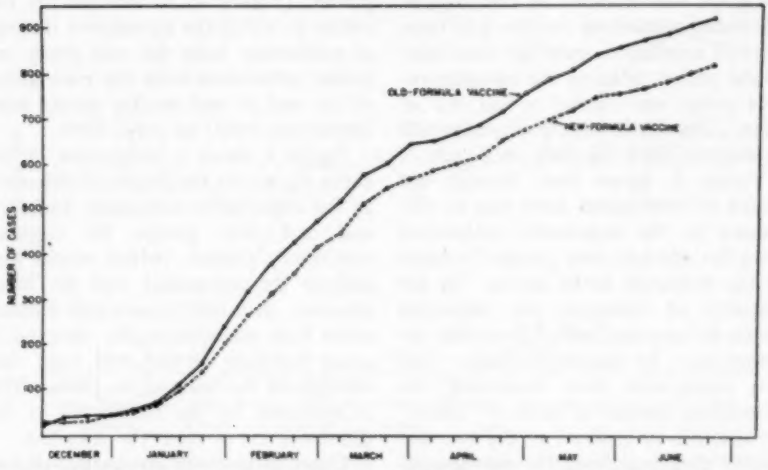


FIGURE 2

Comparison of Cumulative Number of Cases of Nasopharyngitis, Laryngitis and Bronchitis in Two Groups Given Old-formula and New-formula Influenza Virus Vaccine.

1 DEC., 1947 THROUGH 1 JULY, 1948



respiratory tract most prominently involved. It is for this reason that special attention was given to the group of cases diagnosed as nasopharyngitis, laryngitis, and bronchitis.

The data in Table 2 and Figure 1 indicate the number of patients hospitalized or put on quarters each week with such diagnoses. In almost all cases the presence of a temperature of 100° or higher was the basis for inclusion in these categories. It will be seen that in both odd and even serial-numbered groups, which had been given the "old"- and "new"-formula vaccines, respectively, there was a distinct increase in the incidence of respiratory disease beginning in mid-January and lasting until mid-March. Then, at the end of April and lasting a few weeks into May, there was a second noticeable increase.

It is difficult to see from Figure 1 that, during the period when the amount of respiratory disease was increased, the number of illnesses in the odd half of the population was somewhat in excess of that in the even half. This trend is shown more clearly when the data are presented cumulatively.

Figure 2 shows graphically (also see Table 2) the cumulative number of cases in the odd and even groups from December, 1947, to July, 1948. It is clear that the number of cases from the odd group exceeded the number of cases from the even group. The extent of the difference at the end of the observation period was 101 cases.

The question at once arises as to the significance of this difference. The data in the next few figures and tables are intended to help answer this question.

Figure 3 contains a graph of the cumulative number of admissions to hospital for a variety of conditions other than nasopharyngitis. The data for the months December, 1947, through April, 1948, include hospital admissions for injuries, surgery, venereal diseases, and neuropsychiatric conditions; and to these have been added admissions for tonsillitis, scarlet fever, pneumonia, otitis media, and mumps. The data for

the first group were kept only until the end of April, 1948, since the original intention was to conclude the study period as of the latter date. However, the graph was extended by charting the additional admissions for the infectious diseases mentioned, over the remainder of the period, because the nasopharyngitis group was carried to the end of June. The reason for the extension will be evident from the data in Figure 3.

Figure 3 shows that through the period of observation there was no difference in the cumulative admissions from the odd and even groups, in terms of the diagnoses noted above. In the majority of instances the respective points for any one week fall so close together as to be indistinguishable. The two inseparable lines describing the cumulative number of cases of *"other"* diseases are in contrast to the two distinctly divergent lines for *nasopharyngitis, etc.*, as shown in Figure 2.

Although the data in Figure 2 clearly indicate that a greater number of cases of respiratory disease had occurred in that half of the population with odd serial numbers, it is not easy to tell from the graph when this difference occurred or to what extent. In order to show this difference, a series of points was plotted (Figure 4) to demonstrate the extent to which the cumulative number of admissions from the odd group exceeded admissions from the even group at the end of each weekly period from December, 1947, to July, 1948.

Figure 4 shows a comparison of the curve expressing the degree of difference in the cumulative admissions from the odd and even groups for common respiratory disease (which would also include the influenzas) and for other diseases. It is readily seen that illnesses *other* than nasopharyngitis occurred in equal numbers of odd and even men throughout the observation period. This is indicated by the fluctuation of the difference curve near the zero-line.

Cases of common respiratory disease also occurred in equal numbers in odd and even groups during December, 1947, and early January, 1948. However, beginning in mid-January the number of cases among *odd* men began

FIGURE 3

Comparison of Cumulative Number of Cases of Illness other than Common Respiratory Disease in Two Groups Given Old-formula and New-formula Influenza Virus Vaccine

1 DEC., 1947 THROUGH 1 JULY, 1948

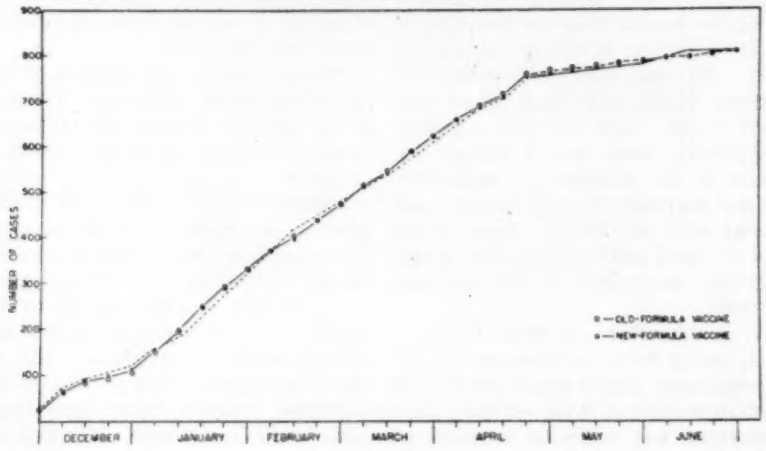
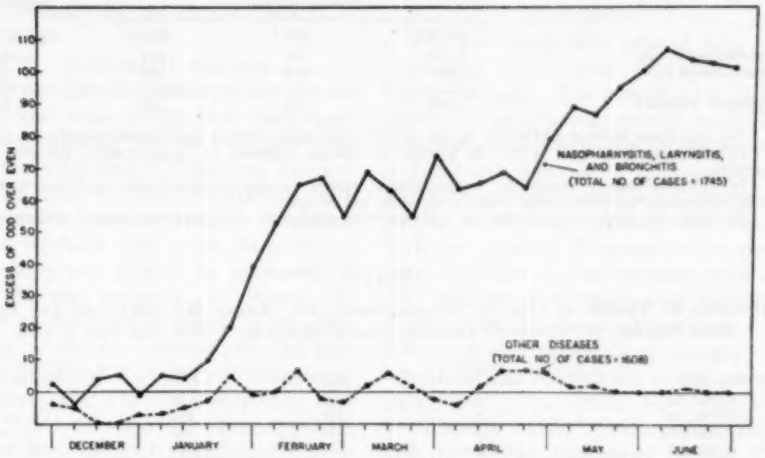


FIGURE 4

Difference in Cumulative Number of Cases of Illness in Odd- and Even-Numbered Men Given Old-formula and New-formula Influenza Virus Vaccine, Respectively



to exceed the number of cases from the *even* group. This continued until the end of February. Although, as shown in Figure 1, the high incidence of respiratory disease was maintained until the end of March, before declining to lower levels, the number of such cases among odd and even men was essentially the same through March and April. Then, during the second increase in common respiratory disease in April and May, there occurred another period when odd-numbered cases exceeded even-numbered ones. In June both groups were again equally represented.

It appears from these data that some factor was operative during the periods in January-February and April-May when the even-numbered group was favored with fewer cases of respiratory disease. It is to be recalled that the odd- and even-numbered groups differed with respect to one factor only; the even-numbered men had received the "new" vaccine containing antigens of the A-prime strain as well as the A and B strains, while the odd-numbered men had received so-called "old" vaccine that contained only the A and B antigens, but not the A-prime antigen.

It seems reasonable to conclude that the occurrence of 101 fewer cases of respiratory disease in that half of the population with even serial numbers was related to the treatment given. The data shown in the foregoing charts are summarized in Table 3.

For comparison with the numbers of odd and even men diagnosed as having had *nasopharyngitis, laryngitis,* and *bronchitis,* there is shown the number of cases of *other illnesses* from the odd and even groups. In addition the number of odd and even men in eight companies selected at random is tabulated for comparison. This number was selected to show how many odd and even men are found in a randomly selected group comparable in size to those in the illness categories.

It is clear that the difference of 101 cases of nasopharyngitis, etc., between the odd and even groups is significant in view of the fact that little or no difference between odd and even is evident in other categories of similar size. Al-

TABLE 3

Comparison of the Total Number of Cases of Common Respiratory Disease, and of Other Diseases, in Odd and Even Groups Occurring in the Interval December 1, 1947–July 2, 1948

	Number of Cases			Difference
	Total	Odd *	Even *	Odd-Even
Nasopharyngitis, etc.[1]	1,745	923	822	+101
Other Diseases [2]	1,608	804	804	0
Population Control [3]	1,691	848	843	+5

* The odd group received old-formula vaccine and the even group received new-formula vaccine.

[1] Includes cases hospitalized or put on quarters for illnesses diagnosed as nasopharyngitis, laryngitis, or bronchitis.

[2] Includes admissions to hospital for venereal disease, surgery, injuries, neuropsychiatric conditions as well as the pneumonias, tonsillitis, scarlet fever, otitis media, and mumps.

[3] Represents the number of men with odd and even serial numbers in eight companies selected at random.

TABLE 4

Tabulation of Number of Cases of Nasopharyngitis, etc., Among Men with Odd and Even Serial Numbers in 5 Successive Intervals Between December 1, 1947, and July 2, 1948

Inclusive Dates	Length in Weeks	Odd	Even	Excess of Odd over Even
Dec. 1–Jan. 15	6	56	51	+ 5
Jan. 16–Feb. 26	6	325	265	+ 60
Feb. 27–April 30	10	340	341	— 1
May 1–June 17	6	157	114	+ 43
June 18–July 2	3	45	51	— 6
Total	31	923	822	+101

though a statistical test for significance supports this statement, the data shown in Tables 4 and 5 are presented to strengthen the opinion that the divergence is probably due to a difference in the number of cases of influenza in the two groups and that this was brought about as a result of vaccination.

In Table 4 it is seen that the difference between odd and even, with respect to numbers of cases of nasopharyngitis, occurred in two distinct periods. From the serological data (to be presented below) it is evident that a flurry of influenza occurred during the first of these periods (January 16–February 26), and it may be presumed to have occurred in recognizable numbers during the second period (May 1–June 17).

Table 5 contains a comparison of the numbers of cases of nasopharyngitis in odd and even groups during the period of presumed virus activity and in the remainder of the observation period.

TABLE 5

Numbers of Cases of Nasopharyngitis, etc., from Odd and Even Groups in the Intervals of Presumed Influenza Virus Activity as Compared with the Remainder of the Observation Period

Periods of Presumed Virus Activity	Length in Weeks	Odd	Even	Excess of Odd over Even
Jan. 16–Feb. 26 May 1–June 17	12	482	379	+103
Remaining Periods				
Dec. 1–Jan. 15 Feb. 27–April 30 June 16–July 2	19	441	443	— 2
Total	31	923	822	+101

Although comparable numbers of cases occurred during both periods the difference between odd and even was evident only during the intervals January 16–February 26 and May 1–June 17.

SEROLOGICAL STUDIES

At the time the difference between the odd and even groups was recognized, serological tests had not yet been done on the acute and convalescent sera collected from patients hospitalized with respiratory disease. Paired specimens were collected from more than 500 individuals who were ill in the period of the highest incidence of illness. In view of the analysis shown in the foregoing, it was not surprising to find that a certain number of cases of influenza A had occurred; nor was it surprising that the strain of virus prevalent appeared to be, from the serological findings, more closely related to the 1947 virus (Type A-prime).

Of the group of 528 paired serum samples only 28, or about 5 per cent, were found to have significant antibody increases (4-fold or more) in the convalescent sera when tested with the FM1 strain (Type A-prime). Of the 28, only 4 were detected to have a 4-fold rise in titer when tested with the PR8 strain (Type A), and 9 more showed a 2-fold change in titer; thus suggesting a closer antigenic relationship to the A-prime subgroup of influenza virus Type A. It is interesting to note that 19 of the 28 positive cases were individuals with odd serial numbers, and 9 were from the even-numbered group.

The relatively small number of serologically positive cases indicates that only a small proportion of the illnesses responsible for the peak in February and March was due to the influenza virus. The cases examined serologically were those occurring in that period; blood for study was not obtained during the flurry in the late spring. The small number of cases of proven influenza were not concentrated in any particular organizations.

DISCUSSION

The serological data are of help in evaluating the clinical and epidemiological findings. The fact that the proportion of serologically proven cases of influenza was so low makes the difference of 100 cases between the odd and even groups more significant than if the proportion of influenza infections was high. It is not possible to estimate the per cent reduction in the influenza attack rate resulting from vaccination without resorting to too many assumptions in arriving at an estimate of the number of cases of illness attributable to the influenza virus. The result would be of questionable value. Suffice it to say that when two vaccinated groups of equal size in the same population were compared, the one given the vaccine that furnished the broader antigenic coverage experienced approximately 100 fewer cases of respiratory disease as compared to a similar group given a vaccine that was defective with respect to the particular antigen for the prevalent virus.

Largely because of the nature of the "control" group and the low incidence of cases of proven influenza, it is not desired to draw far-reaching conclusions from this study. Nevertheless, several things have been learned.

1. As an addition to information from earlier studies, which indicated that vaccination reduces susceptibility to naturally occurring influenza A and B, the present investigations show that susceptibility to the disease caused by a virus of the A-prime sub-group can also be reduced by vaccination. The failure of vaccination to influence susceptibility in the spring of 1947, together with the findings in the present study, emphasize the necessity for continuing to include the new antigen in

vaccines of the future, and emphasize a problem long recognized, namely the necessity for further study to determine the most effective antigenic formula.

2. From independent studies of the Fort Dix epidemiological data by Dr. Philip Sartwell, of the School of Hygiene of Johns Hopkins University, as well as the observations that have been described, it seems that influenza *did not* occur in epidemic proportions at Fort Dix during the period of this study. Accordingly, it might be concluded that a proportion, at least, of influenza virus infections that occur *sporadically* or *endemically* can be prevented by vaccination.

Even though influenza vaccines may not yet be complete in their coverage they do contain, nevertheless, antigenic components for certain viruses that are potentially the cause of moderately severe disease in man that may be extensively disseminated, sporadically or epidemically.

In closing, a word of optimism is in order to counteract opinions that have emanated from various quarters of disappointment in the "failure" of vaccination to influence susceptibility to influenza in the spring of 1947. In the opinion of others, the so-called failure has been regarded as a finding of great importance. One cannot escape the fact that at that time an etiologic agent was discovered capable of causing widespread disease in man, and by virtue of the vaccination studies, its antigenic difference from previously isolated strains of influenza virus Type A was clearly recognized. Some have stated that this strain is a "mutation" and that this might mean that we will always be immunizing against a disease that occurred the year before.

There seems to be something wrong with this idea from a biological viewpoint. It might be questioned whether the new strain may not have prevailed at some previous time. It is entirely possible that it may have escaped detection in recent years, or that it had been more active prior to the time when the influenza viruses were so easily isolated.

It is a more hopeful view to consider that there is a finite number of antigenic varieties, or sub-groups, and that we may not yet have them all in the various laboratories throughout the world, nor is the classification yet complete.

The results of the work of the strain study center of the Influenza Commission and the results of the field studies, already under way for 1948–1949 and to be continued indefinitely into the future, should provide the answers.

SUMMARY

1. In the winter of 1947–1948 studies on vaccination against influenza were carried out in a military installation. Due to limiting circumstances that are described, the study involved a comparison of two vaccines that differed in strain composition. Representative strains of Type A and Type B viruses were present in both. However, only one of the two vaccines contained, in addition, the antigenic variant of the Type A strain (referred to as A-prime) that was prevalent during the winter and spring of 1946–1947.

2. The entire population was vaccinated; men with odd serial numbers received one of the vaccines and the even-numbered men received the other. Records were kept of admissions to hospitals and to quarters for all diseases. The data revealed that the group given the new-formula vaccine, which contained the A-prime antigen, experienced approximately 100 fewer cases of respiratory disease. As for other illnesses there was no difference, in this respect, between groups given the different vaccines.

3. Serological tests of acute and convalescent sera revealed the occurrence of a small proportion of cases of influenza virus infections during the period of increased prevalence of respiratory disease. Moreover, from the serological studies it appears that the prevalent virus was related to the A-prime sub-group, which was represented in only one of the two vaccines.

4. These observations indicate that during a period in which *influenza occurred sporadically or endemically*, the use of a vaccine hav-

ing the specific as well as the broader antigenic coverage, was effective in reducing the number of cases of respiratory disease.

5. The significance of the existence of antigenic varieties of influenza virus strains is discussed in relation to the problem of immunization.

ACKNOWLEDGMENTS: These studies could not have been undertaken without the interest and willing coöperation of certain key persons in the organizations involved. It is a pleasure to express our grateful appreciation to Lt. Col. Frank W. Threadgill, Post Surgeon at Fort Dix; to Col. Charles W. Farinacci, Commanding Officer of the First Army Area Medical Laboratory; and to Col. Leroy D. Soper, Commanding Officer of Tilton General Hospital. It is desired to acknowledge, too, the generous assistance of the staffs of the respective organizations.

As noted in the text, these studies were initiated following the advice of a committee of the Army Epidemiological Board and of members of the Office of the Surgeon General. The advice and suggestions of the committee in planning the work are greatly appreciated. It is desired to acknowledge particularly the helpfulness of Col. Tom F. Whayne, Lt. Col. Frank L. Bauer, and Maj. Thomas G. Faison. The continued interest and advice of Dr. Thomas Francis, Jr., is warmly appreciated.

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Mental Hygiene Statistics

The Division of Mental Hygiene of the U. S. Public Health Service on November 1, 1948, published the first of a series of current reports on Mental Hygiene Statistics to be designated as the MH-S series, and making available the results of the annual Survey of Patients in Mental Institutions earlier than the final published report. The first report shows by states and regional division normal capacity, percentage of overcrowding, the full-time administrative staffs, and expenditures for the maintenance of state hospitals for mental disease in 1946. The Annual Census of Patients in Mental Institutions was transferred from the Census Bureau to the Public Health Service early in 1948.

A Public Health Rh Program on a State-wide Scale*

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THE philosophy of any state as to what constitutes public health work will determine its attitude toward an Rh program. The widening concept of the function of a public health laboratory has made it possible to include blood grouping as one of the essential procedures in many states. Evidence that many neonatal deaths could be prevented by giving the attending physician advance warning of possible trouble prompted the Utah State Board of Health to approve an Rh typing program without qualification.

The drafting of a set of comprehensive plans was made a joint responsibility of the Division of Laboratories and the Division of Maternal and Child Health; the former to provide equipment and secure personnel, and the latter to pay the cost of all salaries and biologicals. These plans were completed early in 1946, but until a dependable supply of antiserum and additional personnel were assured, the program was delayed until July, 1947. The final draft contained three major objectives:

1. Insuring the Rh typing of every pregnant woman
2. Finding new sources of typing sera
3. Aiding communities to establish blood donor lists

All three objectives have been thoroughly covered. Every blood sample labelled "prenatal" is routinely checked for A-B-O and Rh types. During the first year, over 96 per cent of all gravid women in Utah were typed by the State Health Laboratory, indicating that the program was well accepted by the physicians.

Due to the lack of personnel, no attempt has been made to process typing sera for our own use. The Blood Grouping Laboratory of the University of Utah is engaged in preparing such sera, and many of our reagents are secured from that source. By making available to Dr. G. Albin Matson,† head of the University Laboratory, lists of the women whom we find to be sensitized, we are assuring ourselves and other laboratories a much larger supply of serum.

The Utah Health Department does not have facilities to put into effect a state blood bank such as that of Massachusetts.[1] As a substitute, we are permitting physicians to collect blood from volunteers for typing, and it is up to the physician to obtain donors when needed. This phase of the program was ignored until we could be sure of an ample supply of anti-C and anti-E sera. The reason lies in the fact that cross-matches as done in many hospital laboratories do not take into account the possibility of Rh antibodies in the recipient. To avoid the least chance

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

† Now Director of Blood Banks, Latter Day Saints Hospital System.

of transfusion reaction, it is necessary that any donor reported "negative" lack all three antigens.

In fulfilling the basic points in the Rh program, we found the answers to several questions which had been raised when the plans were first outlined. Chief among these were cost, personnel, space and equipment, reliability of mailed samples, and scope of the program.

Cost — The total cost to Utah for the first year was slightly over $10,000 and estimates for the present year indicate that the amount spent will be approximately $11,000 for a greatly enlarged program. Table 1 gives a breakdown of these figures.

Personnel — The present personnel consisting of a specialized serologist as Chief of Section, a laboratory helper, and a secretary, is just adequate to handle the number of typings and titrations with the methods now in use.

Space and Equipment — Lack of space is frequently mentioned as a reason for not doing Rh work. Our entire Rh section is compressed into an area of 91 sq. ft. This is too little, to be sure, but the work gets done. With the exception of a view box for slide testing, the essential equipment such as centrifuges, refrigerator, water bath, etc., should be found in any laboratory. While a deep freeze unit is desirable for storing serum it is not necessary.

Reliability of Mailed Samples — In 1947, the New Jersey Laboratory sent out a questionnaire including the query "Are mailed samples reliable for typing?" The laboratories doing Rh work at that time agreed that such samples are suitable, but cited no satisfactory experimental evidence. Controlled work on our part, still in progress, has been advanced to a point that has satisfied us that even badly hemolyzed specimens can be typed with complete certainty.

Scope — Prenatal specimens are typed routinely; husbands (or families) of Rh-negative prenatals and blood donors

TABLE 1

Cost of Rh Program in Utah for 1947, Estimated for 1948

Biologicals						
Serum	*Year*	*Specimens*	*cost/ml.*	*tests/ml.*	*cost/test*	*Total*
Anti-D agglutinating	1947	23,787	$3.50	30	$0.117	$2,775.00
	1948	27,000	1.50	30	0.050	1,350.00
Anti-D blocking	1947	8,244	2.00	33	0.061	500.00
	1948	27,000	2.00	60	0.033	900.00
Anti D tube check	1947	—	—	—	—	—
	1948	5,040	4.25	37	0.114	595.00
Anti-D slide check	1947	—	—	—	—	—
	1948	480	1.50	30	0.050	24.00
A and B	1947	25,768	1.00	100	0.010	515.00
	1948	27,000	1.00	100	0.010	540.00
Anti-CD	1947	298	1.50	30	0.050	15.00
	1948	3,400	1.50	30	0.050	170.00
Anti-E	1947	298	4.00	35	0.114	34.00
	1948	3,400	4.00	35	0.114	388.00
30% Albumin	1947	2,357	—	—	0.036	85.00
20% Albumin	1948	2,830	—	—	0.022	62.00
Totals	1947	—	—	—	—	3,924.00
	1948	—	—	—	—	4,029.00
Salaries	1947	—	—	—	—	6,500.00
	1948	—	—	—	—	6,880.00
Total Cost of Rh Program	1947	—	—	—	—	$10,424.00
	1948	—	—	—	—	10,909.00
Total number of tests (including all typings, titrations, screenings and specificities	1947	61,360	—	—	—	—
	1948	96,000	—	—	—	—
Average cost/test	1947	—	—	—	$0.170	—
	1948	—	—	—	$0.114	—

upon request. Premarital typings are refused, for tripling the size and cost of our present organization to satisfy curiosity does not seem justifiable. As pointed out by Cappell,[2] specimens from gravid women should be typed with anti-D serum only, and a highly effective program may be based on the use of the one serum. We subtype all D-negatives with anti-CD and anti-E sera, but for the prenatals report the result of the D typings only. These subtypings represent our only method for obtaining a steady supply of C and E cells to use in specificity tests. In some instances, they have enabled us to explain to the physician apparently discrepant results between our typings and those of laboratories using anti-CD serum for all purposes. Hr typing with anti-c serum is limited to husbands of known sensitized women. Because of the great element of uncertainty in these tests we recommend familial studies as well. A very guarded interpretation is sent with each report.

With regard to tests for sensitization, we feel that these should be an integral part of the routine in any public health laboratory doing Rh work. Public health emphasis is on prevention, and the only method for early recognition and treatment of erythroblastosis is by testing the mother's serum before delivery. Performing titrations on only those cases showing a suggestive clinical history or for the purpose of confirming a diagnosis is not sufficient to accomplish the aims of a public health service. Upon request we are trying routine tests for antibody on all D-negative prenatals, using the serum from the same specimen with which they were typed. A brief experience has shown that these extra tests can be done without increasing our personnel, and with very little extra cost. However, many women first see their doctor in the early months of pregnancy and antibodies are frequently not demonstrable until later. It has been our experience that many physicians are content with a single negative titration report, making the value of routine antibody determinations questionable, especially at an early stage.

Figure 1 gives an outline of the procedures in use. We have tried every type of test we could, including evaluation of some not mentioned here, retaining those found to be best adapted for large-scale work in our hands.

Use of an exceptionally potent agglutinating serum as well as a blocking serum from an independent source is necessary to check anomalous results between the tube and slide tests. We have found a few specimens which typed consistently positive by one method and negative by the other.

The tube test has been well standardized, and no departures have been made from the usual methods.

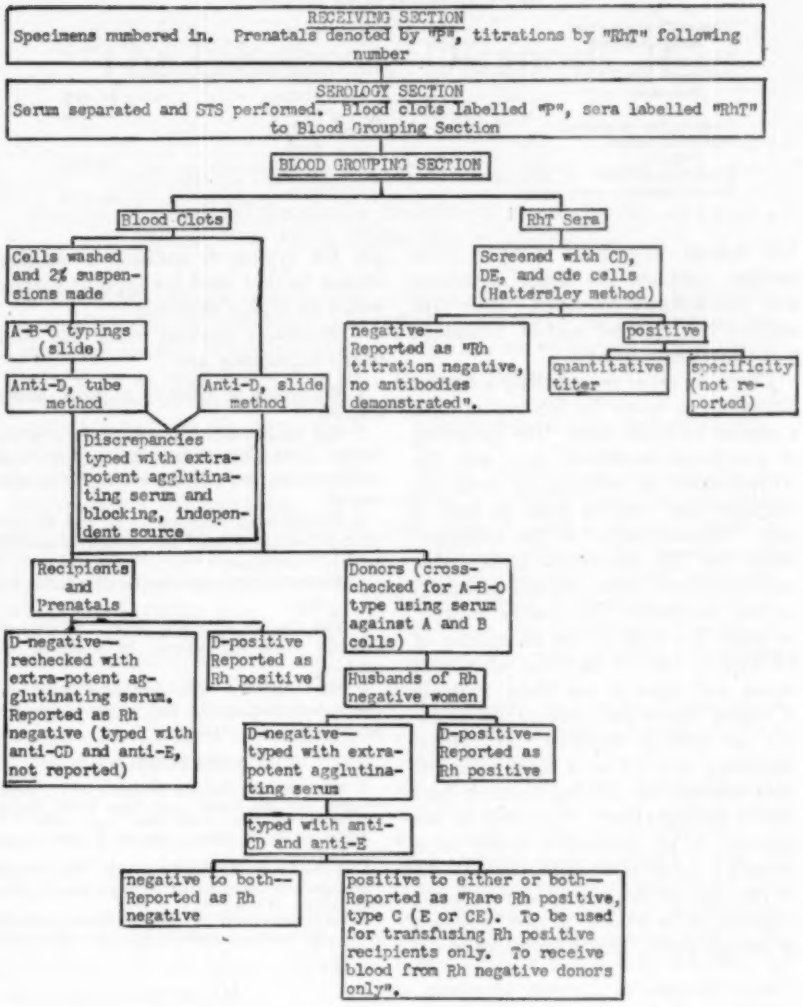
The slide test using clotted blood is readily adaptable to large-scale work. One person is able to run an average day's 85 specimens in 40 minutes.

It may be of interest to mention that the antibody in four samples would have been missed if the Hattersley technique[3] were not employed. Three showed a marked prozone in the blocking titration, while the fourth gave no reaction whatever unless centrifuged before incubation. Specificity tests are made against type "O" cells of Rh groups CD, DE, C, E, and Rh-negative. Several of each type are used; 8.5 per cent of the women tested are sensitized.

When the program began, the tube test with agglutinating serum was the only one used. During the time that this method was being followed the accuracy of our typings was only 99.2 per cent. Since the adoption of the multiple-check system, the accuracy has jumped to 99.91 per cent. These figures are based on repeated samples on the same individuals.

The fact that Utah has a prenatal STS law and that we do the vast ma-

Figure 1
FLOW SHEET OF PROCEDURES


RECEIVING SECTION
Specimens numbered in. Prenatals denoted by "P", titrations by "RhT" following number
SEROLOGY SECTION
Serum separated and STS performed. Blood clots labelled "P", sera labelled "RhT" to Blood Grouping Section
BLOOD GROUPING SECTION
Blood Clots
RhT Sera
Cells washed and 2% suspensions made
A-B-O typings (slide)
Anti-D, tube method
Anti-D, slide method
Screened with CD, DE, and cde cells (Hattersley method)
negative—Reported as "Rh titration negative, no antibodies demonstrated".
positive
quantitative titer
specificity (not reported)
Discrepancies typed with extra-potent agglutinating serum and blocking, independent source
Recipients and Prenatals
Donors (cross-checked for A-B-O type using serum against A and B cells)
D-negative—rechecked with extra-potent agglutinating serum. Reported as Rh negative (typed with anti-CD and anti-E, not reported)
D-positive Reported as Rh positive
Husbands of Rh negative women
D-negative—typed with extra-potent agglutinating serum
D-positive—Reported as Rh positive
typed with anti-CD and anti-E
negative to both—Reported as Rh negative
positive to either or both—Reported as "Rare Rh positive, type C (E or CE). To be used for transfusing Rh positive recipients only. To receive blood from Rh negative donors only".

jority of such specimens puts us in the best position to act as a central Rh laboratory for the entire state. van Saun [4] has emphasized this value of centralization, basing her arguments on the inadequacy of hospitals for the work, and the control on typing sera offered by doing large numbers of samples. Despite the improvement in typing sera brought about by the NIH standards, a careful check is still necessary. For example, we have received one lot of anti-D serum from a licensed firm which agglutinated only 40 out of

TABLE 2

Record of Results of Rh Program

Total specimens received	26,163	
Badly hemolyzed	376	1.43%
Total typings	25,787	
Individuals typed	23,661	
D-positive	19,647	83.04%
D-negative	4,014	16.96%
Screening test for antibodies	2,001	
Individuals tested	1,106	
Positive	94	8.50%
Total births in Utah	21,015	
Prenatal typings — same period	20,335	96.70%

200 known D-positive samples. In another instance, the alpha agglutinin was incompletely absorbed, while still another lot, labelled anti-D, contained anti-C antibody as well.

There are other reasons why a central laboratory is better for Rh typing than a number of small ones. The gathering of unselected statistical data and the dissemination of information from the literature can well be done in such a unit. Concentration of the comparatively few Rh specialists is desirable until more and better trained personnel become available. By better trained, we mean not only in the techniques of Rh typing, but in knowing what sera to use and when to use them. Misuse of typing serum has come to our attention on several occasions. A central laboratory can act as a focal point for those laboratories desiring to check their results against others. One step in this direction is an evaluation study on a voluntary basis which will cover about 50 per cent of the laboratories of Utah. This will be an annual service. As soon as enough public health laboratories begin Rh typing, a national evaluation similar to that used for syphilis studies would be highly desirable.

Conclusions reached from the first year's experience are:

1. Rh typing is definitely a public health function.
2. The minimum service offered by a public health laboratory should be typing with anti-D serum and testing for antibody formation.
3. Special tests, such as C, E, and Hr are recommended, but may be omitted depending on local conditions.
4. Mailed samples are completely reliable for Rh typing.
5. For greatest accuracy, both the tube test and the slide test should be used on all samples.
6. Rh education of physicians must be undertaken, before the full value of an Rh program can be realized.

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The Laboratory Diagnosis of Tuberculosis*

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PULMONARY disease can be detected clinically and radiographically but the demonstration of tubercle bacilli in the sputum or body fluids of a patient is the surest method of diagnosing tuberculosis. As other diagnostic methods find increasing employment, there arises a greater need for demonstration of the causative microörganism. The results of other procedures, including x-ray, may be equivocal. The finding of tubercle bacilli admits of no equivocation in the diagnosis.

With the advent of mass radiography many patients have been classified as "tuberculosis suspects." The physician is confronted with the problem of deciding: First, does this pulmonary lesion represent tuberculosis? and second, if this is tuberculosis, is it "active" or "inactive"? His decision determines whether or not the patient will be sent to a sanatorium or tuberculosis hospital. Unless repeated x-ray examinations show definite changes, it is almost impossible to answer either one or both of the above questions without bacteriological aid.

Modern laboratory methods of searching for the tubercle bacillus can greatly assist in the diagnosis of tuberculous pulmonary lesions. The three procedures most widely used are: (1) microscopic search, (2) cultural techniques, and (3) animal inoculation. Nearly all types of pathological material can be examined by one or all of these methods.

MICROSCOPIC SEARCH FOR TUBERCLE BACILLI

While other means are available for detecting tubercle bacilli in pathological material, none is so easy, rapid, or readily applicable as that based on the tinctorial reactions of this bacterium. Many staining methods have been devised, but the Ziehl-Neelsen technique remains the most reliable and widely used.

Microscopic techniques, however, are not sensitive enough to be reliable when small numbers of bacilli are being sought. It has been estimated that 100,000 bacilli per ml. of sputum must be present before their detection in smear preparations is likely. Also, it is not possible to say with certainty that acid-fast and alcohol-fast microörganisms which may be seen on a slide are really tubercle bacilli. In addition, it is extremely difficult, or impossible, to differentiate microscopically nonpathogenic acid-fast microörganisms from tubercle bacilli. Because of these difficulties, numerous other methods have been devised for the purpose of revealing tubercle bacilli in pathological material. The most promising, reliable, and inexpensive of these are methods of digestion and cultivation.

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

DEMONSTRATION OF TUBERCLE BACILLI BY METHODS OF DIGESTION AND CULTIVATION

For many years it has been the practice of some laboratories to use methods thought to concentrate tubercle bacilli. Usually this consists of the addition of a digesting agent to the specimen, followed by centrifugalization and search for the bacilli in the sediment. Recently, Spendlove, *et al.*,[1] have shown that in many cases this procedure actually dilutes the specimen and makes the bacilli more difficult to find. They have shown that direct smears made by selection of choice particles, such as caseous flecks in sputum, are more efficient than smears from acid and alkali concentration techniques.

With the development of more specific and more sensitive culture media, small numbers of tubercle bacilli can be detected in pathological material by methods of cultivation. From the diagnostic viewpoint, the ideal culture medium is one which initiates rapid growth from a small number of tubercle bacilli, at the same time inhibiting the growth of contaminating microörganisms. It should be simple to prepare, yet capable of supporting the growth of different types of tubercle bacilli, at the same time allowing one to differentiate them from saprophytic acid-fast bacilli. As yet there is no artificial medium which fully meets these criteria, but much progress has been made along certain lines which leads one to believe that soon more perfect culture media for tubercle bacilli will be devised.

Among the most significant and interesting recent work along this line in the United States has been the development of a synthetic liquid medium which supports submerged, diffuse growth of small inocula of tubercle bacilli. The stages in the development of this medium are of historical and academic interest.

In 1945 Rene Dubos[2] reported the development of a liquid semi-synthetic medium which supports growth of tubercle bacilli which is submerged and diffuse, apparently because of the presence of a water-soluble ester of a long-chain fatty acid. Davis and Dubos[3] later confirmed these findings, and investigated further the effects of the synthetic lipid components. These lipids consisted of esters of sorbitol and various long-chain fatty acids (lauric, palmitic, stearic, and oleic), which are used industrially because of their surface activity, i. e., detergency, wetting properties, etc. All these compounds are characterized by their possession of both lipophilic properties (determined by the constituent long aliphatic chain of the fatty acid) and hydrophilic properties (supplied by the multiple oxygen containing groups of the alcohol). Such substances are readily adsorbed on the surfaces of the tubercle bacilli, and their wetting effect promotes diffusion of the organisms throughout the medium. This also facilitates more intimate contact between organism and environment, and thus facilitates nutrition and growth.

Of the various surface-active compounds tested, one sold commercially as "Tween 80," a polyoxyethylene derivative of sorbitan mono-oleate, was found to be most satisfactory. Tween 80 is a yellow liquid, viscous in consistency but soluble in water in all concentrations. Aqueous solutions of Tween 80 have been found to be resistant to autoclaving, but deteriorate by slow hydrolysis upon standing at room temperature for several weeks.

Davis, Dubos, *et al.*, investigated the biological properties of tubercle bacilli growing diffusely in the presence of Tween 80, and found that the three major types, human, bovine, and avian, retained their characteristic morphology and staining properties for more than a year, with repeated transfers; and their viability for periods of several months.

Both crystalline serum albumin and "fraction V" were shown by Davis and Dubos, in a subsequent publication,[4] to have a stimulating effect on the growth of tubercle bacilli in Dubos medium. Albumin alone facilitates the initiation of growth of small inocula but does not markedly increase the total amount of growth, whereas, the sorbitan monooleate (Tween 80) alone does not permit growth of the smallest inocula. The incorporation of both albumin and Tween 80 seemed to enhance multiplication; growth of the smallest inocula being detectable in 8 to 11 days. In general, serum albumin protects the tubercle bacilli and other microörganisms from the toxic action not only of long-chain fatty acids but also of many fatty acid. Subsequent investigations[7,8] substantiated these early findings. Several methods were discovered for eliminating lipase activity from albumin.

Although Dubos and Davis never stated that this medium was devised for diagnostic use, it was apparent that investigations along these lines would soon follow. In a preliminary report, based on 165 specimens, Foley[9] concluded that this medium could be successfully used to isolate tubercle bacilli from various pathological materials. He pointed out the marked reduction in time (av. 10 days) required for the laboratory diagnosis of tuberculosis. In a second report Foley[10] summarized his experiences with the diagnostic use of this medium as shown in Table 1.

TABLE 1

Guinea Pig vs. Dubos Medium (Foley)

	Positive by				
	Guinea Pig Only		Culture Only		
Culture and Guinea Pig	*No.*	*Per cent*	*No.*	*Per cent*	*Mean Incubation (days)*
57	54	94.7	50	87.7	10.6

other substances: heavy metals, phenolic compounds, etc. Its major role in Dubos medium, however, is the binding of the traces of oleic acid liberated from the Tween by hydrolysis during sterilization, etc.

In a later publication Davis and Dubos[5] demonstrated beyond doubt the toxicity of unesterified fatty acid for tubercle bacilli, after developing a method[6] for extracting small quantities of fatty acid in the presence of Tween.

In addition to its protective action, the albumin was discovered to exert an undesirable effect as well. Commercial albumin (Fraction V) was found to contain small amounts of lipase which in several weeks hydrolyzed enough Tween to exceed the binding capacity of the protein which had been found to be about 2 per cent of its weight of

Foley also commented on his experience with the use of a modification of Dubos medium made solid with agar and recognized the difficulties involved in differentiating tubercle bacilli from saprophytic acid-fast bacilli:

"Saprophytic mycobacteria as yet cannot be sufficiently differentiated to permit the exclusive use of these media for the specific diagnosis of tuberculosis on certain kinds of material; namely, urine and gastric aspiration."

He also stated:

"As yet, too few positive specimens have been studied on the solid medium to permit analysis. The few strains isolated, as well as stock cultures of tubercle bacilli, grew as small, smooth, soft, colorless, semitransparent colonies after 7 to 10 days of incubation. Colony morphology was not unlike that of the streptococcus; markedly different from the hard, granular, opaque growth usually observed in coagulated egg media."

Goldie,[11] in 1947, reported the successful use of 2.5 per cent solution of ammonium carbonate for homogenization and concentration of tuberculous sputa which were then inoculated into Dubos medium containing 0.5 to 2 units of penicillin per ml.

Because of these encouraging reports many American laboratories have attempted to employ this medium for routine diagnostic cultures. For the most part the practice was soon abandoned for the following reasons:

1. The medium is easily contaminated. Unfortunately, when penicillin is added in concentrations high enough to be effective against contaminants, it inhibits growth of tubercle bacilli.[12,13] (See Table 2.)

TABLE 2

Examination of 5 Microscopically Positive Sputum Specimens by Two Different Cultural Methods and Guinea Pig Inoculation

Medium	*Culture showing growth of acid-fast organisms*	*Cultures showing positive results on inoculation into guinea pig*
Tween-Albumin + penicillin	0	0
Lowenstein	5	5

2. One can never be sure whether the turbidity which indicates growth is due to the presence of tubercle bacilli or other microorganisms.

3. The number of positive cultures is not greater than the number found on conventional solid egg media (see Table 3).

TABLE 3

Results of Attempts To Cultivate Tubercle Bacilli from 74 Specimens of Pathological Material on Dubos Medium and Solid Egg Medium *

	Dubos Liquid Medium	*Solid Egg Medium*
Positive cultures	3	17
Negative cultures	71	57
Totals	74	74

* From Wm. H. Maybury Sanatorium, Northville, Mich. (Courtesy—Dr. C. E. Woodfuff).

In larger series of specimens cultivated on Dubos medium in our laboratory and at the Barlow Sanatorium in Los Angeles, Calif.,[14] similar results were obtained. Because of this, the Committee on Evaluation of Laboratory Procedures of the American Trudeau Society[15] has stated that the Dubos medium in its present state is not recommended as a diagnostic medium. It seems reasonable to believe, however, that with certain modifications the Dubos medium can be developed into a medium suitable for primary isolation of tubercle bacilli. Much work is now under way with this goal in mind.

Many investigations have also been carried out attempting to simplify the more complex solid egg media (such as Petragnani's and Lowenstein-Jensen) now in wide use. The laboratory subcommittee of the American Trudeau Society[15] has devised a relatively simple egg-yolk medium which they now recommend for use in routine diagnostic laboratories. This medium has the advantage of simplicity of preparation but has the disadvantage of supporting colony growth which is soft, creamy, and moist and, therefore, does not allow for easy differentiation of pathogenic from nonpathogenic acid-fast bacilli.

It is the experience of the Tuberculosis Evaluation Laboratory of the U. S. Public Health Service that the Jensen-Holm modification of Lowenstein's medium[16] is at present the most efficient culture medium for routine diagnostic use. Although somewhat difficult to prepare, it has the advantage of supporting the growth of human, bovine, and avian strains, and the trained bacteriologist can differentiate, with a fair degree of certainty, nonpathogenic from pathogenic acid-fast bacilli.

Colonies of human type tubercle bacilli generally appear in 12 to 25 days and because of their luxuriant growth are termed "eugonic." They are dry, friable, somewhat rough, and after a few weeks generally measure from 8 to 12 mm. in diameter. They assume a "cabbage" appearance and are easily detached from the surface of the me-

dium. They emulsify with difficulty.

Colonies of bovine bacilli do not grow as rapidly as the human type. They usually appear in 25 to 40 days. They are tiny, pale, smooth, pyramidal colonies. Their growth characteristics have been termed "dysgonic." They adhere to the surface of the medium and emulsify readily.

Colonies of avian bacilli generally appear in two to three weeks. They are smooth and hemispherical and often have a faint yellow or pink pigment. They are somewhat larger than bovine type colonies.

Acid-fast saprophytes appear in a few days and fortunately they are usually chromogenic. Their appearance differs from the pathogenic types in that they are soft, creamy, and usually smooth. Most strains will grow well at room temperature, whereas the tubercle bacilli require 37–38°C. for optimal growth.

Although some workers will not rely upon cultural characteristics to differentiate types, it is usually because they are not looking for these differences. With a modest amount of training, one can suspect the type of organisms from colony appearances using the Lowenstein-Jensen medium. However, final typing should always be made, resorting to the use of laboratory animals.

DEMONSTRATION OF TUBERCLE BACILLI BY ANIMAL INOCULATION

It has been pointed out that tubercle bacilli may be detected in sputum and other pathological material by careful microscopic examination and particularly by growth on culture media. Animal inoculation is a valuable additional method. This is essential in typing of strains and it may be necessary in making the diagnosis. From the diagnostic viewpoint, all urine specimens and gastric washings should be inoculated into animals as well as seeded on culture media. This is necessary because acid-fast saprophtyes are found most often in these body fluids. The smegma bacillus is a frequent inhabitant of the male genital tract, whereas many acid-fast saprophytes from food and other sources may be present in gastric washings.

Recently, experiments by Pierce and associates[17] and Patnode, *et. al.*,[12] have shown that intracerebal inoculation of susceptible strains of mice is a practical and feasible method of testing the virulence of cultures of acid-fast organisms. However, as yet, the routine use of the mouse as a primary diagnostic animal cannot be recommended. The guinea pig and rabbit are the animals of choice — the guinea pig for diagnosis of tuberculosis, human, or bovine, and the rabbit for differentiation between these two types. Fowl, of course, are needed for determination of the avian type.

Well controlled studies now indicate that cultivation techniques are as efficient for diagnosis as is animal inoculation (with the exception of urine and gastric washings). It is, therefore, recommended that all sputum specimens be cultured and that animal inoculation be resorted to only when one suspects bovine or avian type bacilli as indicated by colony characteristics.

SUMMARY

It is no longer acceptable to make a diagnosis of tuberculosis by x-ray findings alone. It is imperative, before a patient is subjected to prolonged therapy for this disease, that the diagnosis be made by recovery of tubercle bacilli from the patient's sputum or body fluids.

Microscopic demonstration of acid-fast bacilli is usually rapid and easy but one has no assurance that the organisms seen are tubercle bacilli, since acid-fast saprophytes are difficult to differentiate. Cultivation affords a more sensitive method of determining the presence of small numbers of tubercle bacilli

in pathological material. On the Lowenstein-Jensen medium the trained bacteriologist can differentiate, with a fair degree of reliability, pathogenic from nonpathogenic acid-fast bacilli. In its present state the Dubos liquid medium is not recommended for primary isolations. Animal inoculation should be performed on all urine and gastric specimens, since they more frequently contain nonpathogenic acid-fast bacilli. The mouse can be used in testing the virulence of a culture but cannot be used for primary diagnosis.

Since the advent of mass radiography, more than ever before it is imperative that laboratories be prepared to search for tubercle bacilli by methods of cultivation.

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Industry's Responsibility for Worker Health*

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THE Union Health Center furnishes a concrete example of organized labor's effort to provide medical care for workers. The International Ladies Garment Workers Union sponsors this institution, not only to take care of workers who are ill or injured, but also to prevent disability and maintain the health of workers on the job. In assisting union members handicapped by chronic disease to keep working and avoid the economic stress of disability, the institution renders a service not only to the individual, but also to the industry and the community as well.

HISTORY OF THE UNION HEALTH CENTER

The institution was founded in 1913, after a strike called attention to the sweatshop conditions existing in the industry and a Joint Board of Sanitary Control (made up of members of the union, the manufacturers, and representatives of the public) set to work to improve the hygienic conditions of the factories. A tuberculosis control program was instituted, sickness insurance inaugurated, and the Union Health Center began to provide medical service, primarily to offer preventive medicine at a convenient time and place and at a cost the worker could pay.

After 30 years, through the union members' own efforts and financing, the institution developed so that it provided about 125,000 services a year in 18 different medical specialties and diagnostic facilities. In 1944 the first employer contributions to the health and welfare funds for garment workers enabled the Center to begin an unprecedented program of expansion, and in 1948, about 450,000 services will have been rendered. The ratio of increase in the actual medical services rendered remained constant among the various specialties and general medicine. However, it was noticed that the ratio of the use of diagnostic facilities to the medical services showed a striking increase, indicating that a better quality of medical care is possible when the cost to the patient is no longer a limiting factor.

The Center occupies six floors of a 27 story building in the garment district of New York City. Its uninterrupted existence and its success in providing good medical care have been primarily due to the fact that it has always been under medical direction. A Medical Council helps formulate its policies and a Medical Board, composed of the heads of each medical service, meets periodically with the staff to consider administrative and scientific problems. Ten full-time physicians coördinate the work of about 125 visiting physicians who man the clinics, certify the disability claims, and direct health surveys. There are also 210 other employees, among whom are 32 nurses, 27 technicians, and 5 pharmacists.

* Presented before the International Association of Industrial Accident Boards and Commissions' Convention in New York, September 13, 1948.

SICKNESS INSURANCE IN THE LADIES GARMENT INDUSTRY

Before 1944, sickness insurance was financed by a nominal premium of $4.20 a year, paid by each member covered. This premium was far below those of many commercial sickness and accident policies. Further, the members of the ILGWU would be considered uninsurable by most underwriters because of the advanced age of the male workers (the average age is over 50) and the high percentage (85 per cent) of female workers.

With such low premiums it was necessary to have strict medical administration of the insurance fund. Therefore, the Health Center then examined each new member who applied for sickness insurance. Since 1945, contribution to the fund by the employers of the industry has made it possible to offer a wider scope of insurance to every union member, regardless of state of health, age, or sex.

Data accumulated in the year 1944, when sickness insurance was maintained wholly by the members, showed that the frequency of claims in that year was 5.7 per cent of the membership insured. The number of disability days averaged 42.3 per claim and 1.83 per cent of the insured members were hospitalized.

In 1947, when the exclusion clauses on gynecological, psychoneurotic, and other conditions were removed, the frequency of claims rose to 10.4 per cent, but disability days per claim dropped to 41.4. Hospital cases rose to 2.56 per cent.

PHYSICAL IMPAIRMENT NOT INCOMPATIBLE WITH PRODUCTIVITY

The value of a medical service program for workers is apparent from some of the data recently acquired, which confirms previous studies of the extent of chronic illnesses occurring among garment workers. We can emphasize that the physical impairment encountered among the skilled workers who are patients at the Health Center apparently does not lower their productivity. The figures covering the frequency of claims and the period of disability do not reflect the extent of the presence of chronic diseases in this group.

Study of a random sample of 5,000 claims for disability made by garment workers in 1947 reveals that the most common cause for disability is diseases of the heart and the circulatory system. These conditions cause the highest number of days lost by the average invalided worker in this industry—51.7 days a year.

The diseases of the respiratory system, which usually occur with the greatest frequency among the general population of this country, were second on the list, representing 14.7 per cent of the total. The average number of days lost through these conditions was less than half of the other disabling conditions—23.7 days per person. Eleven hundred and twenty-five workers were disabled by tumors, of which 415 were cancers or other malignant new growths.

It is estimated that among the 19,750 who received disability claims in 1947, 818,000 working days were lost. Therefore, the average number of days lost by each of the 180,000 insured members of the ladies garment workers union in New York City was 4.3 days in that year—a much lower figure than is found among the general population of this country.

These morbidity data were acquired through the use of the U. S. Public Health Service *Diagnostic Code for Use in Tabulating Morbidity Statistics* (1944). Estimates were made on the basis of the average sickness insurance program functioning among the 32 local unions of the ILGWU in New York City, which offers, as a rule, cash benefits for 13 week periods. Probably other factors influence this exceedingly

TABLE 1

Distribution of Disease among 19,750 Disability Claims, 1947, at the Union Health Center

(Estimated on basis of a random sample of 5,000 claims)

Disease Groups	*Per cent of Total*	*Average Number of Days Lost*	*Number of Patients*	*Total Number of Days Lost*
Heart and Circulatory System	15.2	51.7	3,000	155,000
Respiratory System	14.7	23.7	2,900	68,700
Digestive System	11.8	44.8	2,330	104,300
Genito-Urinary System	10.4	48.7	2,055	100,000
Bones and Organs of Movement	9.9	44.1	1,960	86,500
Neoplasms, malignant and non-malignant	5.7	50.3	1,125	56,000
Others	32.3	38.7	6,380	247,000
Total	100.0	41.4	19,750	818,100

low estimated sickness absenteeism, such as the seasonal nature of the industry. However, the figure seems to be valid for ladies garment workers, in view of the large number of employed persons covered and the constancy of this rate over a period of years.

MEDICAL SERVICE MINIMIZES EFFECT OF TOTAL AND PARTIAL DISABILITIES

The necessity for industry to bear the cost of industrial accidents and health hazards has become an accepted concept. The Union Health Center takes this concept one step further by demonstrating that the practice of preventive medicine for the maintenance of the health of workers can be done economically, efficiently, and to the advantage of labor, management and the community, at a nominal cost to industry.

From the experience of this institution it can be seen that where medical service can be extended to persons disabled by minor or major handicaps, far less loss of working time will ensue. A person who has suffered injury through accident or illness, or who is handicapped by chronic illness which disables him at periodic intervals, is prone to worry and to a feeling of insecurity which threatens his ability to work. Without the support of constant medical service, a minor physical handicap is too often aggravated by an exaggerated mental distress which causes a prolonged disability requiring extensive and expensive medical attention. Often, older age workers with physical impairments have more highly developed skills and are more dependable than the younger, healthier workers who feel more secure and less eager to maintain a position in the industry.

The attitude toward absenteeism on the part of labor and management clashes because management prefers to employ healthy workers to minimize the possibility of absenteeism, while labor tends to stress the need for keeping handicapped workers on the job. Absenteeism will be decreased by the use of health and welfare funds to provide medical care to maintain the health of workers.

REHABILITATION OF THE PHYSICALLY IMPAIRED

In the social security and compensable disability field there have been, unfortunately, large gaps in the provision of the necessary means of rehabilitation in chronic illnesses. This is evident in tuberculosis, arthritis, heart disease, and neurological conditions, all of which are now receiving the attention of the National Health Institutes.

In these conditions the costs of rehabilitation are beyond the capacity of ordinary wage earners. Also, the implications of the disabilities caused by the disease produce fear in the victim as well as in the employer. Thus, the

economic problem is so great that no individual worker or employer can solve it without assistance.

Legislation which will protect everyone is necessary, with the government offering aid for a program supporting the rehabilitation of citizens, so that there will be no fear of further compensation or economic drain upon the insurance company or the individual employer. In this way prejudice against the hiring of physically impaired workers may be overcome. Undue fear of compensation claims, which prevents the utilization of skilled handicapped workers, is to the detriment of the victim and the industry.

Today's trend is toward recognition of the principle that a worker's life and health are exposed to physical deterioration and destruction in industry, just as machinery is exposed to wear and tear, breakage, and depreciation. Perhaps there is no better impetus to the acceptance of this principle than the recent development of health and welfare programs in industry.

The mine workers have announced an extensive proposed program, and the ILGWU has a 35 year record of providing medical service and social security benefits for its members. Already numerous other unions are following this pattern. Three million workers in the United States are now protected by health and welfare funds involving 300 million dollars.

This trend in industry parallels a movement for state governments to take over some phases of social insurance through the extension of compensation laws. Rhode Island was the first state to compensate workers for disabilities due to non-occupational illnesses as well as for occupational disabilities. California and New Jersey have also taken this step.

The vital question before us today is: Will the states undertake, as Rhode Island has, complete (monopolistic) control of the administration and distribution of compensation for disability due to any sickness? Or, as in California and New Jersey, will the states supervise the work of existing insurance companies, industries, and trade unions which have well established social insurance programs?

Regardless of how these questions may be settled, it is evident that industry, both labor and management, are beginning to attack the problem effectively.

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REORGANIZATION OF THE HEALTH SERVICES OF THE FEDERAL GOVERNMENT

ON November 30, 1948, a Committee on Federal Medical Services, under the Chairmanship of Tracy S. Voorhees, made a report to Herbert Hoover, Chairman of the Commission on Organization of the Executive Branch of the Government, which has been briefly reviewed in our columns.[1] The subcommittee which dealt specifically with the problems of preventive medicine and public health was under the Chairmanship of Hugh R. Leavell, now Chairman of the Executive Board of the A.P.H.A.

It will be recalled that the Commission assumed the creation of a new Cabinet Department embracing health, education, and social security. It recommends that within this department there be created a National Bureau of Health with a professional career officer as Director General, reporting directly to the secretary of the department. It proposes within this bureau three major divisions dealing, respectively, with Medical Care, Public Health, and Research and Training.

The Medical Care Division would administer all general hospitals of the armed services and most station hospitals, except those at outlying posts[2]; the hospitals of the present Public Health Service; and St. Elizabeths Hospital; and would discharge all medical functions of the Veterans Administration, intramural and extramural.

The Public Health Division would include the functions of the Bureau of State Services, the quarantine activities, the Biologics Control Laboratory, and the Offices of Sanitation, Engineering, and Dentistry of the U. S. Public Health Service; and also the duties of the present Food and Drug Administration. Its major functions would be to administer grants-in-aid, to conduct a clearing house of information on all public health activities; and to regulate interstate commerce in foods, drugs, and medicines.

The Division of Research and Training would include the direction of the National Institutes of Health and administration of grants-in-aid in its field.[3] The

strongest emphasis is laid throughout the reports of the committee on the importance of prevention—not only for the benefit of the people as a whole but for reduction in the cost of medical care to the federal government itself, which now provides such care to between one-sixth and one-seventh of the population of the United States.

The scope of these recommendations is radical and far-reaching. They will no doubt be opposed—as all attempts to reorganize the machinery of federal government have always been opposed—by individuals and groups who fear damage to traditional power and prestige. They will, no doubt, be subject to criticism by others who believe that parts of the program are basically unsound. Such criticism should be welcomed, for no administrative proposal is ever perfect.

The problem is being studied by appropriate organs of our Association; and the A.P.H.A. will be duly represented when bills to implement the program are introduced and called for hearings. Meanwhile, the subject should be carefully considered by our membership, and comments submitted to our officers so that the wisest possible decisions may be reached.

In any case, Mr. Voorhees and his committee deserve our gratitude for their courageous and constructive attack on a serious and vital problem; and particularly, for their emphasis on the fact that the solution of that problem depends on prevention rather than cure and requires extension of the basic research on which progress in preventive medicine must rest.

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DOROTHEA LYNDE DIX

THERE is a strong movement on foot this spring to secure the election of Dorothea Lynde Dix to the Hall of Fame, when the choice of the next group of candidates for this honor takes place in 1950. It is a movement which should have the active support of the public health profession. Oliver Wendell Holmes, W. T. G. Morton, and Walter Reed are the only representatives of the health field in the present roster of the Hall.[1]

Dorothea Dix was the grandchild of an active and vigorous physician and apothecary. Her family lived in Boston, although she was born on a visit to Maine in 1802. After the death of her father, in 1821, she lived with her grandmother in Boston and tutored the children of William Ellery Channing (who was a major influence in her life), and organized a successful private school. In 1836 she suffered a complete physical and nervous collapse; but gradually recovered. In 1841, she volunteered to teach a class organized for women convicts in the East Cambridge jail; and this proved the turning point of her career.

In the jails and almshouses of this period, the criminal, the indigent, and the mentally diseased were indiscriminately huddled together under physical and psychological conditions of a barbarity which it is difficult for us to realize today. The revelation of conditions in East Cambridge roused Dorothea Dix to action.

Notebook in hand, she visited jails and almshouses from the Berkshires to Cape Cod and prepared a memorial to the Legislature calling attention to "the present state of insane persons confined within this Commonwealth, in cages, closets, cellars, stalls, pens; chained, naked, beaten with rods, and lashed into obedience." Her overwhelming mass of evidence and her fervid eloquence prevailed; and a bill was passed providing greatly increased facilities for the care of the insane in the Worcester Hospital.

As soon as this measure passed, Miss Dix began to extend her program to other states. She made a first hand study of conditions and presented memorials to the legislatures in New York, Rhode Island, New Jersey, Pennsylvania, Kentucky, Louisiana, Ohio, Tennessee, North Carolina, Alabama, Mississippi, and other states. She underwent untold hardships and hazards in her journeyings. Once when passing through a Michigan forest, she noted that the lad who was driving her had a brace of pistols which she took away from him to avoid violence. Soon thereafter, a man rushed into the road and demanded her purse. "Are you not ashamed to rob a woman?" she said, "I have but little money and that I want to defray my expenses in visiting prisons and poorhouses, and occasionally in giving to objects of charity." The expression of the highwayman changed and he became "deathly pale." He recognized the voice he had heard lecturing to prisoners in a Philadelphia penitentiary; and Miss Dix was obliged to force some money on him "to support you until you can get into honest employment."

Dorothea Dix's selfless passion for humanity triumphed over hostile legislatures as over menacing bandits. Eleven states, by 1850, had established or enlarged hospitals for the insane at her behest, including the Butler Hospital of Rhode Island and the first state hospital of New Jersey at Trenton.

After the decade of this whirlwind state campaign, Miss Dix began to cast her eyes on Washington and on June 27, 1848, a memorial prepared by her was presented to the Congress, calling for the appropriation of five million acres of public land, to be sold and the proceeds distributed among the states for the care of the insane. Shelved in the 1849 Session, this bill (with an increase to 12,500,000 acres of land) was reintroduced in 1850 and expanded to cover the indigent blind, deaf and dumb, as well as the indigent insane. In one session of this Congress the House passed the bill and the Senate defeated it; in a second session the process was reversed. In the 1854 Congress Miss Dix and her friends began the fight again. This time the bill passed both houses; only to be vetoed by President Franklin Pierce on the grounds—prophetic of much future discussion of similar issues—that "if Congress have power to make provision for indigent insane without the limits of this District, it has the same power to provide for the indigent who are not insane and thus to transfer to the federal government the charge of all the poor in all the States. . . . The fountains of charity will be dried up at home, and the several States, instead of bestowing their own means on the social wants of their own people, may themselves become humble suppliants for the bounty of the federal government, reversing their true relation to this Union."

It was a century later, in 1946, that the National Mental Health Act was passed, making the dreams of Dorothea Dix a reality on the federal level. What she had accomplished in the states, however, constituted probably the greatest forward step in the care of the insane ever accomplished by any individual on this continent.

The admission of Dorothea Lynde Dix to the Hall of Fame would do more than render just honor to a great American. It would call attention to the impor-

tance of carrying forward the banner which she raised a century ago; and at a moment when the advancement of the cause she served is particularly timely.

Progress in the field of mental hygiene in the United States has been curiously associated with fifty year cycles. It was at the end of the 18th century that Benjamin Rush, for the first time on this continent, preached the importance of reasonable and humane care and treatment of the insane. It was in the middle of the 19th century that Dorothea Dix began to make Rush's vision a reality. It was in the first decade of the 20th century that Clifford W. Beers reawakened public interest in this problem and founded the National Committee for Mental Hygiene. Today we are in a fourth period of great potential progress. The Second World War demonstrated the vital importance of mental hygiene through the revelation by draft examinations of the extent of the problem, and by the intelligent attitudes of the medical departments of the Armed Forces indicated the curability of a large proportion of emotional disabilities. Military experience of the First World War made us stop talking and begin doing something about venereal diseases. The Second World War, with the reënforcement of the National Mental Health Act, can accomplish the same sort of change in public attitudes with regard to the emotional disorders.

We know that our institutions for the care of advanced mental disease are better than those which Dorothea Dix and Clifford Beers denounced; but that they are still—for the most part—badly planned, undermanned, under-financed—disgraces to our civilization. We know that mental hygiene clinics and child guidance clinics are found here and there, doing the finest type of preventive work; but that the number of such essential facilities available is only a small fraction of what is needed to meet basic community needs.

Our best tribute to the memory of Dorothea Lynde Dix should be to give the cause of mental hygiene, which she promoted so gallantly and with such success, the support which will bring it to its appropriate place in our community program for the promotion of the public health.

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RESEARCH ON POLIOMYELITIS

THE National Foundation for Infantile Paralysis was organized, in 1938, primarily for the purpose of study and research in connection with the disease from which its great founder suffered. In the very next year, however, it entered the field of direct assistance in the actual care of patients suffering from poliomyelitis. In 1948, with the serious epidemic in certain areas (with 1,122 cases reported to the U. S. Public Health Service in the week of highest incidence), this aspect of the work of the Foundation was preëminent in the public eye. Between January and October the national headquarters, from its 50 per cent share of the March of Dimes campaign, provided about four million dollars for direct relief service to chapters whose local funds had been exhausted. This financial aid, the provision of hospital supplies and equipment, and the training and assignment of specialized personnel (doctors, nurses, nursing aides, physical therapists, etc.) have, of course, been invaluable in dealing with epidemics.

Of even greater potential importance, however, is the comprehensive program of basic research which the N.F.I.P. continues to foster and whose significance the general public is apt to overlook. In the last seven months of 1947 (for which full reports are now available) the Foundation provided grants of three-quarters of a million dollars to over 30 university and hospital laboratories for research projects. About one-third of this sum was for studies on the prevention and treatment of the aftereffects of the disease, two-thirds for research on the virus and its relations to the human and animal body. Under the latter heading are included projects dealing with diagnostic methods, with the differentiation of strains of the virus and with methods of spread of the disease on the one hand; and, on the other, with host problems, such as the reproduction of the virus in the body, the chemistry of reacting mammalian tissues, the response of nerve tissues to invasion, the mechanisms of immunization, the influence of genetic strains of experimental animals and their nutrition upon the processes involved. All of these studies should be of interest, and will contribute to fundamental scientific knowledge if not to the control of poliomyelitis; but through such a diversified program, somewhere, some day, the great moment will come. The key will be found when we know why the majority of persons in contact with the virus are unscathed while the minority suffer from clinical disease. This is the heart of the issue and it is a problem of biochemistry in a broad sense of the term.

When the secret is at last revealed, it will come as a result of such basic researches as the N.F.I.P. is now making possible.

Clearing House on Public Health Salary Information

Recommended Salary Minimums for Public Health Physicians *

The holding and procurement of competent personnel is one of the most difficult and crucial problems in public health administration today. An acute personnel shortage exists and low salaries paid professional public health workers by most public health agencies is a major factor responsible for this shortage.

Illustrative of the personnel shortage facing almost all health agencies is the experience of the American Public Health Association's Vocational Counseling and Placement Service. As of October 1, 1948, 766 vacant positions were listed in contrast to 91 applicants for these positions. A study by the U. S. Public Health Service [1] revealed 1,847 vacancies among health agencies in 12 states in November, 1947, and meantime the situation appears to have grown worse and not better. The field of public health has been expanding rapidly, creating a large demand for additional personnel, and this expansion will continue to aggravate the personnel shortage.

In spite of the salary increases granted recently to some agencies, many public health workers are worse off now than before the war. It has been shown in one study [2] that it requires $9,819 in 1948 to buy what $5,000 would buy in 1939 for a family of four; and according to the *Bureau of Labor Statistics Consumers Index*,[3] the cost of living has increased from August 15, 1939, to August 15, 1948, by 76 per cent.

The proportionate increase of salaries of professional public health workers has been much less than this. The figures vary from place to place, but the following examples are typical of the discrepancy. In one state with a good public health program, the salaries of medical health officers increased only 37 per cent between 1940 and 1948.[4] In another state the salaries of all state employees increased only 28 per cent between 1939 and 1948.[5] Obviously the purchasing power of these salaries decreased during those years; meantime, in these states as in most states, the public health program has steadily grown, which means the professional workers are carrying heavier responsibility for less real income.

In contrast to these inadequate salary increases, wage earnings in manufacturing industries increased by 100 per cent and the national per capita income by 140 per cent between 1940 and 1948.

It is generally recognized that a great discrepancy exists between the incomes of full-time public health physicians and those in private practice, although no substantiated figures are available for comparison. It is significant that the average asking salary of physicians seeking work with the American Public Health Association's Vocational Counseling and Placement Service is considerably higher than the average salary offered. It is to be noted that most graduate physicians go into private practice rather than public health work.

The median salary of full-time public health physicians in the state agencies (exclusive of state health officers) in 1948 fell in the range $6,000 to $6,400 [6]; and those in local health agencies in the range of $6,480 to $6,720.[7] These salaries appear to be much less than the net annual income of a good general

* Approved by the Executive Board of the American Public Health Association, January 28, 1949.

practitioner in most areas in the United States.

However, the experienced public health physician with special training (an M.P.H. academic degree) and/or demonstrated ability to administer public health programs is now recognized as a medical specialist. As evidence of this, the armed forces and the U. S. Public Health Service established an Interim Board to recognize public health as a specialty of medicine. An American Board of Preventive Medicine and Public Health has been set up. The salary of a public health physician should reflect his specialty training and attainments.

Legal restrictions in many governmental jurisdictions freeze the medical health officer in a salary range with other department heads (or sometimes below them), few of whom must have the training equivalent to that of a qualified health officer, with salaries of subordinate professional personnel below that of the health officer. Thus the median salary of municipal health officers ranged from $3,900 in cities of 10,000 to 25,000 population to $10,000 in cities over 500,000 according to the *Municipal Year Book 1948*.[8] In each of the six population groups in that study the median salary of health officers was considerably below the median salary of the superintendent of schools, ranging from 64 per cent in cities of 250,000 to 500,000 to 79 per cent in cities over 500,000 population. It is essential that salary boards and appropriating bodies recognize in their salary schedules the special training, experience, and competence required of professional public health workers.

For other but related reasons public health positions often lack attractiveness. Salary increments, when provided, have not exceeded 5 years generally, which may result in the employee, who has reached the maximum salary, looking elsewhere for a position. His value to the organization, however, usually will increase if he stays with an agency well beyond the 5 year period. Security of tenure for competent personnel, retirement plans, sick leave, and vacation periods have been inadequate in many instances.

An effective recruiting program is essential to fill existing vacancies and positions being newly established, but such a program can succeed in substantial measure only if salaries and related prerequisites are commensurate with the training and experience required of the employee and bear a reasonable relationship to the earnings available in private practice or other full-time employment by similarly qualified persons. Lacking this, not only will recruitment be inadequate, but competent personnel will continue to desert public health for other more remunerative positions, as they now are doing.

The Executive Board of the American Public Health Association, well aware that the public is faced with the urgent necessity of holding and recruiting competent personnel for public health positions, and that improvement in salaries paid and personnel practices is essential to achieve these needs, has recognized the facts set forth above and has endorsed the recommendations and graphic presentation which were prepared by the Subcommittee on Salary Study and approved by the Committee on Professional Education.

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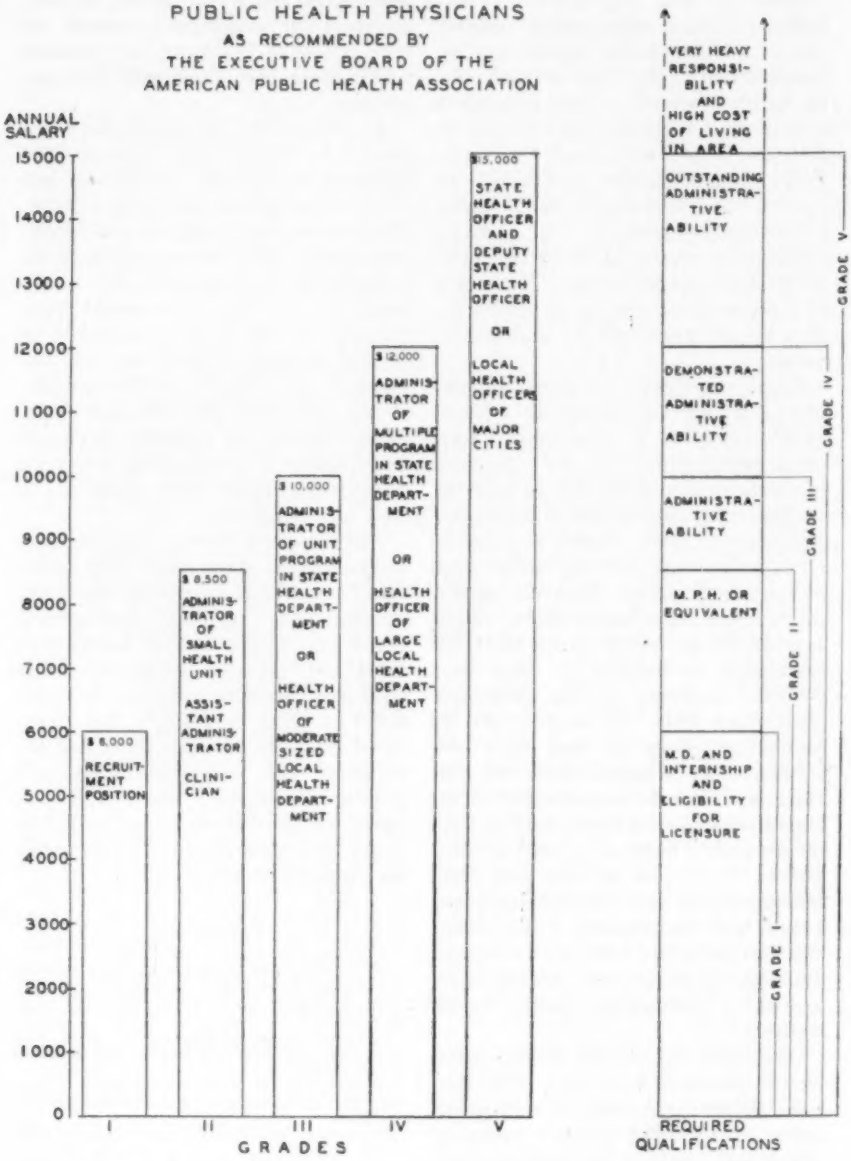
STARTING SALARIES FOR FIVE GRADES OF PUBLIC HEALTH PHYSICIANS

AS RECOMMENDED BY THE EXECUTIVE BOARD OF THE AMERICAN PUBLIC HEALTH ASSOCIATION



ADOPTED JANUARY 28, 1949

RECOMMENDED SALARY MINIMUMS FOR FIVE GRADES OF PUBLIC HEALTH PHYSICIANS

The compensation for physicians employed full time by health agencies in the United States in 1948 should be adjusted to not less than the following scales which take into account the degree of responsibility in various positions, the training and experience required of the physicians, the necessity for maintaining professional standing in a community, and the increasing cost of living.

1. Physicians employed in a full-time position for training in public health should receive an annual salary of at least $6,000 if they have an M.D. degree from a recognized medical school, have completed an internship, and are eligible for licensure in the state in which they work.

2. Physicians employed in a full-time position as a clinician, health officer of a small unit, or an assistant administrator, should receive an annual salary of at least $8,500 if they have the following basic qualifications:

a. A degree Doctor of Medicine from a recognized medical school.

b. One year of internship and eligibility for licensure.

c. A Master's degree in Public Health (which includes some field experience) or demonstrated knowledge and experience equivalent to that represented by this degree.

3. Physicians with these basic qualifications who in their past experience have shown administrative ability should receive an annual salary of at least $10,000 if they carry the responsibility for administering a single program in a state health agency or a large local health agency (e.g., program for cancer control, mental hygiene, tuberculosis, or crippled children, etc.); or serve as health officer of a moderate sized local health unit, or carry equivalent responsibility.

4. Physicians with the basic qualifications and demonstrated ability to administer responsible public health programs should receive an annual salary of at least $12,000 if they carry heavy responsibility such as administering multiple programs in a state health agency (e.g., directors of local health administration, preventable disease control); or serve as health officer of a large local health unit, or carry equivalent responsibility.

5. Physicians with these basic qualifications and outstanding demonstrated ability to administer public health programs should receive an annual salary of at least $15,000 to $20,000 if they carry great responsibility in positions, such as the health officers and deputies of our states, major cities, and very large local units carry.

In those areas in the United States where the cost of living is higher and/or the public health physicians carry unusually heavy responsibility, higher entrance salary levels are recommended. Salaries, when adequate, should be adjusted proportionately as the cost of living materially changes.

Attention is directed to the necessity for pay increments to recognize the increasing value of service usually given to an organization by public health physicians holding positions in which no further advancement is possible as their length of service increases. Most plans today reach a maximum automatically within a few years. A graded plan of pay increments which extends throughout the period of employment should be adopted for meritorious service.

All official agencies should have an adequate merit system for the selection and promotion of competent personnel and the protection of their tenure of employment, and for the removal of incompetent personnel. Adequate plans for retirement, vacation and sick leave, and an adequate scale of payment for travel and other expenses are essential.

The Executive Board recognizes that the salaries recommended above are considerably higher than the medians now paid for comparable positions; however, the Board is well aware of the fact that the better qualified candidates for positions in public health are demanding salaries equivalent to or in excess of those recommended, and that an increasing number of employers are offering such salaries.

A STATEMENT ON THE RELATIONSHIPS OF THE VOLUNTARY HEALTH AGENCIES TO THE SCHOOL HEALTH PROGRAM *

SEVERAL groups either legally or through common interest share in the school health program. The growth of the program and of the health knowledge upon which it is based is almost staggering. Only through the effective relationship of all groups with important contributions to make, can the school health program approach its goal the best possible health for all children now and throughout their lives.

School authorities by law carry the ultimate responsibility of all programs conducted in the schools. This includes the school health program. Since the control of communicable disease is a part of every school program and is frequently by law the responsibility of the public health department, and since in some states departments of health are responsible by law for medical examinations and follow-up, the latter to the extent set by local statute shares the responsibility of the school health program.

There are many groups without legal responsibility for the school health program which nevertheless have a vital interest in and contribution to make, in whole or in part, to the school health program. Important among these are the medical and dental professions which have through the years given impetus and sound advice toward the continued improvement of school health programs.

Another essential group is the voluntary agency composed of interested citizens, both lay and professional. These agencies are frequently concerned with some special aspect of health. This interest, if properly placed and properly handled, has a part in the total school health program. The aim of the voluntary health agency interested in the school age child is to help make possible for boys and girls lives of usefulness unhampered by illness or poor health. The effectiveness of the voluntary health agency's assistance to schools depends to a large degree upon the mutual understanding of the responsibilities, limitations, and contributions peculiar to each.

A. *Guiding principles in interrelationships between voluntary health agencies and the schools:*

1. School authorities have the legal responsibility for all school programs. The unique function of the school is education.
2. Voluntary health agencies accept this. They also recognize that school age is an excellent learning age. Moreover, their money comes from the community with the trust that it be spent to the best advantage. For these three reasons they strive, logically, to have what they consider important learning material included in this age period. School administrators should recognize that voluntary health agencies have the responsibility and the right to offer and to urge the use of their services. Voluntary health agencies should recognize that the school authorities have the choice of accepting or refusing these services. A coöperative attitude on the part of both parties leads to

* This report involved the coöperative efforts of the School Health Section of the American Public Health Association and the American Association for Health, Physical Education, and Recreation. The statement was prepared by Mrs. Elizabeth M. Semenoff, Director, School Health Education Department, District of Columbia Tuberculosis Association, Washington, D. C., and Ben W. Miller, former Executive Secretary, AAHPER. A request for the coöperative project was made by Mr. Miller and was approved by the School Health Section Council in November, 1946. The appointment of Mrs. Semenoff as a member and representative of the Section to work with Mr. Miller was approved in January, 1947, by the Executive Board of the American Public Health Association. The statement was presented in October, 1947, and approved the following month by the School Health Section Council of the A.P.H.A. In January, 1948, the statement was approved via mail ballot by the Board of Directors of the AAHPER.

the most effective use of the services offered.

3. It is very desirable that personnel working with the schools in any phase of education for health be acquainted with the problems of school administration and classroom instruction and have an understanding of acceptable policies and practices in health education.
4. While voluntary health agencies may contribute to any part of the school health program their most valuable services are usually in the field of health instruction.
5. All efforts in the health instruction of children in school must be channeled through the regularly constituted educational authorities, in coöperation with any other agencies which may also be concerned. This should apply to any situation whether on the federal, state, or local level.
6. The voluntary health agency should never attempt to superimpose a fixed plan on any individual school system, or part of the system, but should work with school personnel for the desired goal.
7. Health education materials offered by voluntary health agencies for the elementary grades must be in harmony with the mental and emotional stage of development of the children concerned. Only those public health problems which touch the child's daily health practices such as the use of quarantine in the control of communicable diseases in children come within his range of interest and understanding. Learning experiences which have direct bearing on his personal health are basically important for these grades. The child in these years is interested in health, not disease
8. In the secondary schools education related to special diseases or special health problems should be integrated into the health course and into such general courses as human biology and general science. It is not acceptable educational practice that programs dealing with specific health problems such as nutrition, cancer, tuberculosis, venereal disease, and first aid be set up as a separate or extra subject. So isolated, one aspect of health has little or no chance of assuming its proper place in the individual's total health learning.
9. The voluntary agency must have a clear understanding with the educational authorities as to suitability and distribution to school personnel of materials they provide. Sound educational policy involves mutual agreement that the provision of educational materials to schools by voluntary agencies be kept separate from their direct fund-raising campaigns.
10. The voluntary health agency should be familiar with the extent and quality of the teachers' education in health.

B. *Types of aid acceptable to school authorities which voluntary agencies can give to the school health program:*

1. Up to date, accurate information on the agency's special health interests. Such assistance should be not only welcomed but asked for by school personnel, who cannot expect to be able to keep up with all phases of the rapidly increasing health knowledge.
2. Teaching tools, such as pamphlets, posters, charts, graphs, films, film strips and slides, exhibits. Such material must be accurate, clear in concept, attractive, and effective, with its purpose solely educational.
3. Suggested teaching units. It is recommended that in the preparation of teaching units the voluntary health agency make use of experienced teachers so that the material is adjusted properly to grade levels and needs.
4. Consultation services.
5. Personnel assigned to educational authorities to work under their jurisdiction.
6. Assistance in the formation of school health councils and coördination of the school health councils with the community health council.
7. Qualified personnel provided to demonstrate a health education program or part thereof, to experiment in new types of programs or to fill the temporary lack of adequate school personnel.
8. Coöperation in the inservice course in health education either in the form of funds or personnel. Such courses should be developed coöperatively with school authorities, especially those having to do with teacher preparation and certification.
9. Scholarships for education in health education.
10. Financial assistance and/or leadership in special projects, such as workshops.
11. Individual conferences with teachers possibly including demonstration teaching of selected health units by a qualified health educator.
12. Guidance in helping teachers to understand classroom observations and/or measurements, non-diagnostic or medical

in nature and in helping to detect, and refer children with signs of impaired health.

13. Guidance for teachers or parents in learning the use of non-medical non-diagnostic screening tests, such as vision and hearing testing, and weighing and measuring.
14. Educational presentations to classroom groups, supplementary or summarizing in nature. These are not to take the place of classroom teaching, which is not to be provided by the voluntary agency except for possible demonstration teaching of a health lesson.
15. Parent health education.
16. Leadership in parent or teacher study groups.
17. Information of general advances in health knowledge and practice for school administrators and teachers.
18. Securing the interest and coöperation of other community groups to participate in the school health program, e.g., conferences and medical and/or educational presentations for teacher groups.
19. Interpreting school health program and unmet needs to the community and stimulating action if desirable.

Credit Lines

THE DIAMOND JUBILEE OF AMERICAN NURSING

Those concerned with the recruitment of public health personnel, and in particular with the nursing shortage, will have noted the well planned effort under the sponsorship of the American Nurses Association for the Diamond Jubilee of Nursing, signalizing the 75th anniversary of professional nursing in the United States. A week in November was set aside for public attention to this subject.

Recruitment for public health nursing is not standardized or stereotyped and in view of the fact that this represents the best financed recruitment effort in public health, the methods employed are worthy of note. Further information may be obtained from the American Nurses Association, 1790 Broadway, New York 19.

A national committee of sponsors for the Diamond Jubilee included the President of the United States, the President of the Rockefeller Foundation, a series of university presidents, the presidents of large professional societies, and other American leaders, including the Surgeons General and other headline names. The information was published with a build-up of Linda Richards, "America's First Professional Nurse" who graduated in nursing from the New England Hospital for Women and Children, Boston, in 1873. Her career as organizer of nursing schools and leader of nursing progress is chronologically presented to the time of her death in 1930.

Accompanying this brochure are three fact sheets, one on legal control, one on nursing distribution, and one on economic security. These are presented in question and answer form and should be provocative to other professions seeking to recruit personnel through similar devices.

Supplementing the foregoing is a series of four pamphlets entitled, 1. "An appeal for Public Coöperation to Resolve the Nursing Crisis"; 2. "American Health Standards Demand Legal Control of Nursing"; 3. "Will You Get Your Share of Professional Nursing Care?"; 4. "A Crisis in Nursing Care Threatens the American People."

Several posters were prepared for the occasion, together with a suggested bibliography on nursing and addresses by various leaders, including Miss Pearl McIver, President of the American Nurses Association.

All in all this has been a creditable approach which ought to have a critical evaluation in the light of results produced so that subsequent efforts of this kind may be even more effective.

FROM A WORKER'S IDEA TO A NATIONAL SAFETY CLUB

The story of the Wise Owls Club has a new gimmick. It didn't originate in a high powered publicity office but in the mind of a grinder in the cleaning room of a foundry—Joe Folks by name, supposedly. Knowing how the Caterpillar Club made the army air force safety conscious, he suggested to the American Car and Foundry Company for which he works, that the idea could be adapted to the peacetime problems of eye safety in industry.

The safety department picked up the idea, designed a small gold owl wearing goggles and found 76 men in ACF plants in six states as charter members, all of whom had saved an eye because of wearing eye goggles in accidents that would

otherwise have been fatal to one or both eyes. This was in April, 1947. By August, 1948, 66 men had been added as charter members at a net saving in workmen's compensation of more than $150,000. In the meantime, the cost of the program was only $33,000.

At this point, American Car and Foundry decided the idea was too good to hoard and turned it over to the National Society for the Prevention of Blindness which is now spreading Wise Owl Clubs throughout industry. It supplies membership pins and certificates for charter members as they become eligible for $2.00 each. For information about a *Wise Owls Club in Your Plant*, write National Society for the Prevention of Blindness, 1790 Broadway, New York 19.

PAMPHLET ON BRUCELLOSIS

The National Society for Crippled Children and Adults does not hold to the conventional definition of "crippling." It has recently published a pamphlet "The Crippler in Disguise" which is the story of Undulant Fever in America. The material is of good quality, is well illustrated and should be widely known to health educators and health officers. National Society for Crippled Children and Adults, 11 South La Salle St., Chicago 3.

FLUORIDES AND WATER SUPPLIES

The pros and cons plus a good historical outline of the addition of fluorides to drinking water for the prevention of caries appears in "Shall Fluoride Be Added to Public Water Supplies?" by Harry A. Faber, in the November, 1948 issue of *Water & Sewage Works*. Mr. Faber doesn't attempt to answer the question, but he gives information which may help you in reaching a decision if you are confronted with that necessity.

ACCIDENT PREVENTION IN HOSPITALS

Hospitals also have accidents, it appears. To head them off the National Safety Council and the Council on Planning and Plant Operation of the American Hospital Association through a safety committee have developed a cooperative program. For an annual fee of $5.00 to the National Safety Council, member hospitals of the Association will be provided monthly with supplies of posters, safety instruction cards, and other safety program materials, as well as a safety newsletter. Its author is Dorothy Pellenz of Crouse-Irving Hospital, Syracuse, N. Y., who gathers news and ideas from hospital administrators throughout the country.

The subscribing hospital in turn agrees to furnish statistics on accidents to the National Safety Council for analysis and measuring of program results and for possible reduction in employee compensation insurance rates.

GETTING UNIVERSAL CHEST X-RAYS

Since 1942 the New Jersey State Health Department has been carrying on free industrial and community x-ray surveys in which nearly 400,000 persons have been x-rayed. But it has a population of over 4½ million and more than a million gainfully employed industrial workers.

To spread information on how all may be x-rayed is the purpose of *X-Ray: the Picture of Health*. A well put together pamphlet tells the extent of tuberculosis, its incidence in the productive age group, and gives information as to how an industry or a community may have an x-ray survey. A six page list of industries that have already had surveys is included to encourage those who would not "be the first by whom the new are tried."

HAWAII'S FUTURE HEALTH PICTURE

In a well produced booklet of about 75 pages, the recommendations of Hawaii's 14 Postwar Planning Committees on Health are published by the

Public Health Committee of the Honolulu Chamber of Commerce. In 8 chapters covering various phases of public health activities extensive recommendations, totaling 173 in one chapter, for immediate action and for long-range objectives are given. Public Health Committee, Chamber of Commerce, Honolulu, Hawaii.

NPC PACKET PACKS A WALLOP

If you do not know the monthly publicity packet, with comments, of the National Publicity Council (130 East 22nd St., New York 10), the one of November 12 is a good one with which to start. About half a dozen items selected from Florida and Seattle and way stations between are excellent illustrations of getting your message across effectively —and simply.

MINNESOTA LEGISLATURE STUDIES COUNTY HEALTH UNIT PLAN

As an earnest of the interest among Minnesota citizens in developing a county health unit plan of public health service the Legislative Research Committee in November, 1948, published *County Unit Health Plan.* This is a joint committee of the legislature meeting quarterly and giving advance consideration to problems to be confronted in the next legislature.

Minnesota does not now have a county or district health unit law but one has been introduced in the current legislature. The Legislative Research Committee's report, which summarizes the health unit situation in the country generally, recognizes the need for better health service in the state. Its report poses two questions: Will the benefits match the cost? If so, where shall the expansion occur? The second question presupposes a choice between the expansion of state health districts into direct service units or the development of local health units.

The report is geared most directly to the financial situation. It points out the expensiveness of the Rochester-Olmstead County Health Department, which is really a loose federation of the public and private health agencies in the area, without noting that the entire county population is less than 40,000 and without suggesting the possibility of coöperative health services with other counties. It also apparently accepts as static the situation in St. Louis County where the organized county health department serves only one-fifth of the population of about 40,000 persons excluding the City of Duluth and all other organized townships and municipalities that have not requested inclusion in the county's program.

In this connection it needs to be pointed out once more that to say as this report does, that the 40,000 persons served by the St. Louis County unit is pretty close to minimum A.P.H.A. standards, is to misread the *Local Health Units for the Nation* report. The 50,000 minimum population is only one criterion; at least an equally important one is that one health unit should serve both the rural and urban areas of a county or counties for the very obvious reasons that trade and communication between rural and urban areas is constant, that expensive overlapping and confusion of services can be prevented, and that inequalities in urban and rural incomes can be balanced.

HEALTH UNLIMITED APPEARS

In October, *Health Unlimited* was born in the San Francisco Health Department as a quarterly publication to "help keep the public as well as professional persons informed on the best health practices, current research in the health field, and up to date knowledge about the city health resources, services, and facilities." The new baby was named by sanitarian Albert Martin competing with 169 entries by other staff members. The lead article of the first issue is Working Together in Public Health,

with joint authorship of the editorial board of 6 staff members. Looks as though coöperation were to be San Francisco's watchword.

A REPORT OF WORK, NOT NAMES

The report of the activities of the Indiana State Health Department for the two years 1946–1948 is notable for several things:

1. It has no long list of names and titles. One wouldn't even suspect that Leroy E. Burney, M.D., is the State Health Officer.

2. It is not afraid of the facts. Pictures and figures show Indiana in relation to other states—40th among 48 states in per capita state appropriations to health departments and less than 25 per cent of the population covered by full-time local health service.

3. The report is imaginatively illustrated and very readable.

POLIOMYELITIS TEACHING MATERIALS

Health workers report finding the *Poliomyelitis Science Unit,* which includes a text for high school students, a teachers' guide, and film slides, useful in educating the public.

Copies for quantity distribution are available without charge from the Education Service, National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.

MISSISSIPPI LEADS IN RECRUITING DOCTORS FOR RURAL AREAS

The Mississippi Legislature of 1946 established a program of providing loans for young men and women in Mississippi to cover the expense of their medical education. The loans provide $1,250 per school year, or a maximum of $5,000 in four years. Applicants who are acceptable for enrollment in an approved medical school may undertake contracts to return after completion of a general rotating internship to a rural area approved by the State Medical Education Board, where the applicant must remain for a minimum period of two years. The loan, which bears 4 per cent interest, is discounted at 20 per cent of the total loan per year of medical practice in a rural area, so that if the young physician remains for five years the entire amount of his loan, plus interest, is credited to him. However, at the end of two years he may pay off 60 per cent of his loan, plus interest, and be free of contract obligations.

The Board supervising the loan program is made up of the Dean of the University School of Medicine at Oxford; the Executive Officer of the Mississippi State Board of Health; President of the Mississippi State Medical Association; a past president of the Federation of Women's Clubs in Mississippi; and a local superintendent of schools. Further details may be obtained from a brochure, *What the Medical Education Program Means to Mississippi,* Mississippi State Medical Education Board, Jackson.

CONNECTICUT'S FILM CATALOG

The film catalog of the Connecticut State Health Department is an attractive booklet called Health Educational Services. In addition to listing some 100 films, it also gives information about other health education services—slidefilms, posters, exhibits, leaflets, and speakers. Bureau of Public Health Information, Connecticut State Department of Health, P. O., Station A, Box K, Hartford, Conn.

ALERTING THE POTENTIAL DIABETIC

In *Harper's Magazine* for January, C. Lester Walker, in "A Million Unknown Diabetics," brings to the general reading public the currently accepted information about diabetes and the possible preventive measures that should be universally known. For the known diabetic he says, "the diabetic today can live really strenuously" citing Mayor La Guardia

and tennis champion William F. Talbert in proof.

For the unknown diabetic he gives the warning of the American Diabetes Association:

Have a blood-sugar test made if: (a) You are 40 and overweight; (b) Any one of your ancestors ever had diabetes. —*Harper's Magazine*, 49 E. 33rd St., New York.

THE RED CROSS SUMMARIZES ITS VANPORT EXPERIENCE

The Red Cross, in summarizing its experience with the disastrous Vanport (Ore.) flood of last spring, found that all its neat disaster plans were not nearly enough. In "What We Learned When Vanport Vanished," E. A. Valentine, disaster Chairman of the Portland-Multnomah County Chapter, outlines the plans that were inadequate for the benefit of other disaster committees who may also have gaps in their planning. The one thing we find missing in this summary is any attention to the preventive aspects—namely, a concern with the bad building conditions that made the Vanport flood much more disastrous than it need have been even taking account of the Columbia River's worst rampage in 50 years. But perhaps it is unfair to expect a disaster organization to concern itself intimately with basic community conditions.

ANNUAL REPORTS

Boston's Health in 1947—This 76th annual report of the Boston City Health Department, with photographs of many of Boston's notable buildings, was prepared to coincide with A.P.H.A.'s 76th annual meeting in Boston in November, 1948. It is dedicated to the Association and reviews public health progress in the city during the 25 years since the Association last met in Boston. It is no surprise that heart disease and cancer in that order were the two leading causes of death both in 1923 and 1947. But it may be a sign of the times that accidents and diabetes were among the leading 10 in 1947 but not in 1923, and that alcoholism, among the leading 10 in 1923, had dropped out of this group by 1947.

TEXARKANA-BOWIE TAKE A BOW!

For the third successive year, Texarkana-Bowie County Health Unit has been the first one to submit its *Evaluation Schedule* in the Association's Annual Evaluation Project. W. L. Kitchens, M.D., is the Director of the Health Unit which covers a population of 72,400. The Chairman of the Health Committee is W. B. Harrell, M.D. Each year the *Schedule* has arrived in the Association office early in February. A good job is done in presenting the data and progress is shown in the use of the *Schedule*.

WORTH ACQUIRING

Aging: Family Health Series—Guide for Public Health Nurses No. 8—As with others in this series, this guide was prepared by the nurses of the Department of Educational Nursing of the Community Service Society of New York to suggest to public health nurses ways and means of working with older people. Community Service Society of New York, 105 East 22nd St., New York 10, N. Y., *15 cents* for orders under 100; *12 cents* plus postage for 100 or more.

Dihydrostreptomycin: A New Antibiotic in the Treatment of Tuberculosis—Squibb's professional service department has prepared a brief pamphlet primarily for physicians giving the facts about dihydrostreptomycin—why it was chosen, what clinical trials it has had, what forms of tuberculosis it affects, its dosage and administration, tolerance, and, finally, a number of precautions. This should be in a library of antibiotics with reference to tuberculosis. E. R. Squibb & Sons, 745 Fifth Avenue, New York.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Voluntary Medical Care Insurance in the United States—*By Franz Goldmann. New York: Columbia University Press,* 1948. 228 pp. Price, $3.00.

The status of voluntary prepayment plans is, perhaps, the most important single issue in the turbulent arena of current medical care planning. In this study—designed as a companion volume to the author's *Public Medical Care*—one of the country's leading experts has undertaken the kind of careful analysis and appraisal that must underlie any national policy in the health services.

In this book, Dr. Goldmann has presented, first, an objective account of principles and prerequisites in the operation of voluntary medical care insurance plans. This constitutes one of the best summarizations now available of all related factors—actuarial, administrative, and medical. Particularly appropriate to current interest in the *quality* of organized service is the brief section on "Adequacy of Medical Care."

Succeeding chapters trace the origins and development of voluntary efforts in medical care, from the mutual benefit associations of the Civil War period to the present vast extension of Blue Cross and the complex organization of New York's Health Insurance Plan. The attitudes of those professional and lay organizations which have influenced the movement are fairly summarized. Each general type of voluntary plan—cash indemnity, hospital and physician's services, group practice, coöperatives—is then analyzed in terms of administration, service, and costs.

The book is completed by an overall estimation of the limitations and potentialities of voluntary plans. The author points out that the historical contributions of the voluntary approach have been inestimable, and that the combination of group prepayment and group practice must have a particularly significant place in any national program of medical care. He concludes, however, that the limited coverage, the restricted benefits, and the high costs of innumerable private plans preclude any serious expectation that the full needs of the nation can be met through such unaided efforts.

The presentation suffers from a profusion of statistical data in the text that might have been organized into tables or charts. One wishes, also, that the author had more forcefully applied his own experience with voluntary plan participation in European health insurance programs to the current issues facing the American people.

EDWARD S. ROGERS

Social Denmark—*A Survey of the Danish Social Legislation. Edited and published by Socialt Tidsskrift Copenhagen,* 1947. xv + 475 pp. No price given.

Denmark's efforts to increase the social security of its population have done much to make its name respected among the nations of the world. As in many other countries, Danish social legislation has grown out of old public assistance laws that had their roots in ecclesiastical and lay charities. The history of this legislation falls into three periods: the first, from the Reformation to about 1891, when a New Poor Law and an Old Age Pensions Act were passed; the second, from 1891 to 1933, during which most of the features that characterize the present situation were introduced; and

the third period, dating from 1933, when the existing social legislation was codified in one inclusive social security system, which has been modified only slightly since then.

The first sphere to be put on a government regulated and supported basis was sickness insurance, when the Rigsdag in 1892 passed a law concerning approved sick clubs. In some very important respects Danish sickness insurance is different from most other types. One of these is the fact that the administration is in the hands of autonomous, but governmentally regulated clubs. Another is the essentially voluntary character of membership. It should be remembered, however, that general prosperity in the Danish community has been greater than in most other European countries.

In addition to sickness insurance, the social security system includes old age and invalidity insurance, workmen's compensation, unemployment insurance, public assistance, child welfare legislation, maternity aid legislation, aid to widows and orphans, legislation organizing and regulating the labor market, and aid for housing and town planning. The volume under review gives an excellent picture of this comprehensive system. While the standard of living in Denmark was reduced during the war, it was possible to maintain the general system of social legislation. This survey of Danish experience is a definitely worth while contribution to an international exchange of social knowledge and experience. The volume is illustrated and has an extensive bibliography. GEORGE ROSEN

Public Health Engineering. Volume I—*By Earle B. Phelps and collaborating authors. New York: Wiley,* 1948. 644 pp. Price, $7.50.

This book is one of two volumes presenting a rather complete review of man's environment. The approach is made on the basis of the effect on man's health of the air he breathes and uses, the water he drinks and wastes, and the food he eats and wastes, and emphasizes some significant facts concerning control measures which can be instituted to create an environment favorable to man. The air and water "contacts" are discussed in Volume I. The food "contact" is to be published as Volume II. The field of public health engineering is presented as that field in which "engineering principles and techniques based on biological data are employed in the practice of public health." "It deals essentially with control of the environment with those modifications and protective and preventive measures that have been found desirable or necessary for promoting optimum conditions for health and well being."

The author states frankly in his preface that the book "is written primarily for the engineer who presumably has learned how to design and build, to teach him, in the light of present-day knowledge of sanitary science, what to design and build and why." It should be added that he should have had some experience and a certain orientation in the public health field generally to be able to use the book to greatest advantage. A student or a person new in the public health field might have some difficulty in accepting the simplified grouping of environment under three "contacts." Probably he would be surprised to find a discussion of bedbugs, lice, and fleas in a chapter on insect control under Part I—The Air Contact.

This volume deserves a place in the public health library of every health department along with other notable books on public health practice, such as those written by Rosenau, Dunham, and Emerson. It fills in many important items involving sanitation barely discussed in the books mentioned. It brings into one reference a compendium of principles of sanitary science and useful data, including some formulas

that could only be obtained heretofore by extensive search in many separate texts. Pertinent references needed to complete a more exhaustive study of engineering *per se* are listed after most of the chapters.

Collaborators in the preparation of this volume included Dr. Harry D. Pratt, Scientist, U.S.P.H.S., who wrote the chapter on Insects and Insect Control; Professor John M. Henderson, School of Public Health, Columbia University, who revised the section dealing with drainage; and Professor C. J. Velz, Manhattan College, who collaborated in the preparation of the whole of Part II—The Water Contact.

WILLIAM T. INGRAM

Principles of Healthful Living: For the Individual and the Community—*By Edgar F. Van Buskirk. Edited by Carl L. Kline. New York: The Dryden Press.* 474 pp. Price, $3.50.

In this revised edition of the work by the same title, published in 1938, the author has used the same functional approach and manner of presentation. The content has been brought up-to-date and an entire new section has been added devoted to family and community health.

In this volume, designed primarily for first and second year college students, the author discusses principles of healthful living from the viewpoint of the individual and that of the total community. The first part includes reference to basic concepts in the interest of giving the student an introductory perspective and understanding of the general nature and scope of the study as a whole. In part two, composed of eleven chapters, the individual aspects of healthful living are stressed, with particular reference to the practical everyday health needs of the individual student.

Part three contains eight chapters, with emphasis upon group health aspects of family and community living: mental health, mental handicaps, progress of medicine, family health, disease control in family and community, and public health agencies. In the appendix, the author has listed a good bibliography of one hundred books found useful for supplementary reading.

This revised volume is recommended for use with college students and should be of interest to educators and public health workers as a general reference.

A. HELEN MARTIKAINEN

Pathology—*Edited by W. A. D. Anderson. St. Louis: Mosby,* 1948. 1453 pp. 1183 illus. Price, $15.00.

Public health workers need a dependable source of reference in the broad field of pathology and are frequently interested not only in the more familiar aspects of pathology but in the aspects of exotic diseases. The reviewer has had an opportunity to test the information available in this magnificent volume in a dozen areas with exceptionally satisfactory results. Especially outstanding are the chapters on Rickettsial and Viral Diseases, on Fungus Infections, on Protozoal and Helminthic Infections, and on Vitamins and Deficiency Diseases. Another outstanding chapter is that on Physical Agents in the Causation of Injury and Disease, covering some of the medicolegal aspects important to physicians in public health. Throughout the volume the references include many recent sources, and the illustrations, including a number in color, are superb. The volume is highly recommended.

REGINALD M. ATWATER

The Leptospiroses—*By P. H. van Thiel. Leiden, Netherlands: Universitaire Pers Leiden,* 1948. 231 pp. Price, 16.50 florins.

This book contains the most carefully detailed and complete review and summary of the present-day knowledge

on the Leptospirae and the diseases caused by them since the monograph by Walch-Sorgdrager which appeared in 1939. In 22 chapters the author discusses the morphology, classification, diagnosis, pathogenesis, and clinical and therapeutic aspects of the leptospiroses. Particularly the presentation of the basic epidemiological features is well documented by judicious selection of the important facts. The presentation is thorough and critical. Those coming in contact with the leptospiroses realize the multitude of unsolved problems; however, a surprising number of solutions will be found in this treatise by van Thiel.

A remarkable number of concepts are touched upon and appraised. Therefore, the content of the text will be useful to the research worker. Excellent illustrations and summary tables are added to the text.

The manuscript was prepared during the war years. References to the very recent literature are not included, although the bibliography, which does not record articles already listed in older monographs, covers 21 pages. The defense mechanism of the host against Leptospira is not discussed.

K. F. MEYER

Advances in Pediatrics, Vol. 3—*Editorial Board: S. Z. Levine, Allan M. Butler, L. Emmett Holt, Jr., and A. Ashley Weech. New York: Interscience Publishers,* 1948. 363 pp. Price, $7.50.

This is the second post-war issue of *Advances in Pediatrics,* and like the two preceding volumes it presents a collection of authoritative and readable monographs of contemporary interest and importance to pediatricians and general practitioners.

The authors of each of the eight articles in the current number are recognized authorities in their respective fields, and each monograph is a complete, scholarly, up-to-date, and practical piece of work in which the author interprets information from background material and synthesizes it with his own knowledge and experience. Quoting from the preface, the eight topics "encompass a variety of subjects and the whole age span from birth through adolescence." Two of the reviews are related to emotional, psychologic, and social problems: "Emotions and Symptoms in Pediatric Practice," by Milton Senn of Cornell University, New York; and "Puberty and Adolescence: Psychologic Considerations," by Hilde Bruch of the College of Physicians and Surgeons, New York.

The remaining six articles cover recent advances in other fields of interest, e.g., "Effects of Birth Processes and Obstetric Procedures upon the Newborn Infant," by Clement A. Smith of Harvard Medical School; "Therapeutic Agents in the Treatment of Epileptiform Seizures," by William Lennox of Harvard Medical School; "Abnormalities and Variations of Sexual Development during Childhood and Adolescence," by Lawson Wilkins of Johns Hopkins; and the three shorter articles, "Viral Hepatitis," by Joseph Stokes, Jr., of the University of Pennsylvania; "Retrolental Fibroplasia," by T. L. Terry; and "The Osteochondroses," by Beckett Howorth, this latter with beautiful plate illustrations.

It would be difficult to find anywhere a more excellent and rewarding review of the recent important pediatric advances. ELINOR F. DOWNS

Proceedings of an Inservice Training Course in Health Education Techniques—*Territorial Department of Health, Honolulu, Hawaii,* 1948.

Health departments and other health agencies would do well to study this report. These proceedings record the step-by-step development of a six session course on health education tech-

niques. It contains detailed descriptions of each session, covering content, method, references, assignments, and evaluation.

Planned for the personnel of the Territorial Department of Health, it was predicated upon the fact that everyone in the department is concerned with health education and therefore should be familiar with presently accepted techniques. Practically every aspect of public health was represented in the group and covered every level of administration.

Health educators of the Department of Health, the Tuberculosis Association, and the University of Hawaii participated in the planning and were responsible for the conduct of the course. They are to be congratulated for a job well done. S. S. LIFSON

Let's Tell the Truth about Sex—*By Howard Whitman. New York: Pellegrini & Cudahy, Inc.*, 1948. 242 pp. Price, $2.50.

Mr. Whitman is a professional writer who has conferred extensively with outstanding authorities on marriage, parent-child relationships, and on the educational principles involved in transmitting both attitudes and factual information concerning sex to children. He has also read widely concerning these subjects. His book has great value as a professional writer's interpretation in popular language of current thought among leading proponents of what is usually referred to in a confusingly over-simplified manner as "sex education." This outstanding value of the book is lost unless it is read and considered as a whole.

The title is no indication of the value of the book. Apparently written primarily to help parents answer children's questions concerning sex, the book rightly emphasizes the greater importance of attitudes and feelings as compared to factual data. However, suitably phrased answers to the more common questions children may ask at various ages are given with the understanding that parents must adapt them to their own personalities and feelings. Certain statements in the book have to be recognized as essentially true, although not specifically true in many individual instances, such as, "A doctor, by examinations and tests, can easily determine whether a person has a venereal disease."

The tendency of a professional writer to use a vigorous and dramatic phraseology has on the whole been curbed in this book, but not completely. If such titles as "Save Sex—and Maybe Civilization, Too" convey an impression of flamboyancy leading to a conclusion that the contents are probably too superficial, a careful reading of the book as a whole will reveal it to be a generally sound interpretation of current authoritative thinking on the subject matter with which it deals. Although written chiefly for parents, professional persons not already familiar with modern concepts of education in this field may, through careful reading of the book, gain a valuable appreciation and an up-to-date understanding of the subject.

ADOLPH WEINZIRL

Nursing for the Poliomyelitis Patient—*Prepared and published by the Joint Orthopedic Nursing Advisory Service, N.O.P.H.N., 1790 Broadway, New York City.* 88 pp. Copies are free on request to physicians, nurses, physical therapists and other allied professional groups.

This handbook is a revised compilation of material from three sources, all of which are publications of the National Foundation for Infantile Paralysis: No. 22, Nursing Care of Patients with Infantile Paralysis, by Jessie L. Stevenson, 1940; No. 45, Guide for Nurses, Joint Orthopedic Nursing Ad-

visory Service, 1944; No. 49, Nursing Care of the Patient in a Respirator, by Carmelita Calderwood, 1944. The need for drawing together these three references has been felt for some time. The writer understands that some workers have decried the omission of the diagrams (from No. 44) showing how wool packs may be cut most economically from blanket material. The Joint Orthopedic Nursing Advisory Service will make up for this deficiency by forwarding on request mimeographed copies of the deleted diagrams.

As its title indicates, this handbook is devoted to discussions of specific nursing problems in the various stages of the disease. The importance of total care is emphasized throughout. The first nine pages include necessary background data on such topics as the Nature of the Disease, Method of Spread, Signs and Symptoms, Incubation Period, etc. Five drawings of bed positions, application of lay-on and pin-on packs, and crutch walking gaits, as well as a few photographs on care of the bulbar and respirator patient, add to the value of the handbook as a teaching aid.

The reviewer has heard much praise of this publication from instructors in orthopedic nursing, and from nurses who have responded to calls from epidemic areas. Some of the latter have read it en route by plane to the epidemic area. Others have said: "I was rarely without it while on duty. Where may I get copies for my friends who are always trying to borrow mine?"

MARY MACDONALD

Practice of Allergy—*By Warren T. Vaughan (2nd ed.). Revised by J. Harvey Black. St. Louis: Mosby,* 1948. xx + 1132 pp. Price, $15.00.

Allergy as a branch of medicine is an outgrowth of certain laboratory observations grouped together under the general rubric of experimental anaphylaxis. Clinical forms of allergy, however, occur much earlier in medical literature. Leonardo Botallo, in 1565, and Johann Binninger, in 1673, described conditions which we would now call allergic. Better known is John Bostock's description in 1819 of his own case of hay fever. It was not until the turn of the century, however, that a basis was laid which made possible the development of clinical allergy. The progress made in this field of medicine since then is reflected in this massive volume of 1132 pages.

Written for physicians and other serious students of allergy, this treatise can be of considerable value to public health workers. Health officers, industrial hygienists, and others who may be consulted in their communities on matters of allergy can turn to the volume under review for dependable, accurate information. This book is recommended as a reference for public health workers.

GEORGE ROSEN

Malaria Control on Impounded Waters—*By E. L. Bishop and M. D. Hollis, Editors. U. S. Public Health Service and Tennessee Valley Authority,* 1947. *Washington, D. C.: Supt. of Documents, U. S. Govt. Ptg. Office,* 1948. 422 pp. Price, $2.00.

Based largely on the extensive experience of the U. S. Public Health Service and the Tennessee Valley Authority with the control of malaria in connection with impounded waters in the southeastern United States, and with a single *Anopheles* vector, this book is a valuable contribution to our knowledge of a particular phase of malaria control. Its value, however, is not limited to this restricted phase of the subject, for much of the material is of general interest to all mosquito control specialists and malariologists.

The most valuable chapters, which are unique among present published material, are those dealing directly with reservoir problems. These are Chapters III,

"Reservoir Preparation," IV, "Permanent Marginal Measures," V, "Water Level Management," VI, "Shore Line Maintenance," and XVI, "Small Reservoirs." Another very valuable chapter is XIII, "The Relation of Plants to Mosquito Control."

There is a series of appendices, among which "C," containing specifications for chemicals used in mosquito control, and "D," containing lists and descriptions of equipment, tools, and supplies, are particularly useful.

Certain chapters, such as XI, "Malaria Mosquitoes," and XII, "Malariology," could have been eliminated on the ground that these subjects have been more adequately treated elsewhere.

The book is unusually well illustrated. There are many photographs, a number in color, and the numerous tables and diagrams are excellent.

HAROLD F. GRAY

The Psychological Origin and Treatment of Enuresis—*A Practical Discussion of Bed Wetting—By Stevenson Smith. Seattle, Wash.: University of Washington Press,* 1948. 70 pp. Price, $1.75.

This is a small, simply written, 68 page book, the first 46 pages of which are written especially for parents and the remaining pages contain a further and more technical discussion of the problem with references to studies previously made and with discussion of different opinions as to etiology and the relationship of enuresis to physical pathology, familial tendency, depth of sleep, disturbing emotions, personality, social adjustment and sexuality. There is a two page bibliography.

Dr. Smith points out that before any attempt is made to correct enuresis the parent-child relationship must be improved by conscious effort on the part of the parent to be a more attractive person to live with. When this has been accomplished the child is ready to plan and coöperate in an effort to prevent enuresis. He describes several methods that may be tried and explains that any method of obtaining bladder control that is not carried out properly may become an added stimulus to bed wetting. It is pointed out that permitting a young child to urinate while he is half asleep rather than wake him thoroughly is training for bed wetting.

Since this book is short, simple, and presents easily understood and logical concepts, it is recommended for the use of parents and public health personnel.

MARION HOTOPP

Zinsser's Textbook of Bacteriology—*By David T. Smith, Donald S. Martin, Norman F. Conant, Joseph W. Beard, Grant Taylor, Henry I. Kohn, and Mary A. Poston, all of Duke University School of Medicine (9th ed.). New York: Appleton-Century-Crofts,* 1948. 992 pp. Price, $10.00.

From the first edition in 1910 by Hiss and Zinsser through the eighth by Zinsser and Bayne-Jones, this classic *Textbook of Bacteriology* has been a favorite with students of bacteriology, public health, and clinical medicine. The authors of this ninth edition have endeavored "to keep inviolate the basic biological approach to bacteriology and, at the same time, to emphasize the public health significance and the practical importance of certain of the biological characteristics of the organisms."

In comparison with the eighth edition, the general arrangement remains the same. However, each chapter has been revised fully in line with recent investigations, and references are notably to recent literature. The discussion of the sulfonamides has been expanded and a section on antibiotics added. There is a new chapter on pleuro pneumonia-like organisms, and the sections on bacterial metabolism, immunology, fungus and viral diseases have been rewritten entirely. The many new illustrations in-

clude beautiful electron micrographs.

Bacteriologists particularly interested in the genus *Salmonella* will be glad to find the Kauffman-White Schema (1946) for antigenic structure. The student of medical mycology will be encouraged to hear that "the difficulties are largely psychological," and he will find an expanded and satisfying section on the subject. In fact, teachers, students, and workers who have awaited this revision with some impatience will not be disappointed. P. L. KENDRICK

Practical Manual of Diseases of the Chest — *By Maurice Davidson (3rd ed.). New York: Oxford University Press,* 1948. 670 pp. Price, $16.50.

The author, writing out of his clinical experience, has as his objective the production of a book which will help medical students and practising physicians in applying practically our clinical knowledge of chest diseases, omitting the circulatory system. He does not claim to be a pathologist.

About a fourth of the book is occupied with preliminary considerations and with diseases above the terminal bronchi, another fourth with pulmonary tuberculosis, and the other half with various non-tuberculous conditions in the lungs and pleura.

Readers in the United States will find this book interesting though differing somewhat from similar ones written in this country. For example, this author gives relatively more attention to bronchitis and bronchiectasis; drugs are prescribed more freely, some 50 sample prescriptions being listed at the end of the volume; the socio-economic factors in relation to tuberculosis mortality are stressed far less; a less radical approach to the surgical treatment of chronic empyema is advocated; less space is given to the discussion of penicillin in pneumonia than to quinine, alcohol, or morphine; streptomycin in the treatment of tuberculosis is not mentioned, although the use of calcium, insulin, tuberculin, gold and iodine is discussed at some length.

There is a good chapter on sarcoidosis. Histoplasmosis and coccidioidomycosis are not mentioned. A modern view is taken of the problem of bronchogenic carcinoma. The x-ray reproductions are excellent.

In the bibliography given at the end of each chapter there are very few references dated later than the last previous edition in 1941. Most of the references are to British sources.

In general this is a readable volume, well documented, written by a man of rich clinical experience. He is not dogmatic but tries to present a balanced judgment regarding alternative theories and therapeutic procedures.

JOHN H. KORNS

A Health Program for Colleges— *A Report of the Third National Conference on Health in Colleges, May 7–10, 1947, New York, N. Y. New York: National Tuberculosis Association,* 1948. 152 pp. Price, $2.00.

The National Tuberculosis Association is to be congratulated for the support which it has given to this Third National Conference on Health in Colleges and this report. This volume contains a statement of the objectives of the Conference, orienting addresses by Kendall Emerson, M.D., and Alexander G. Ruthven, Ph.D., President of the University of Michigan, followed by chapters on college administration and the health program, the health service, health education, physical education and sports, healthful living, and finally, special health problems.

Without doubt, this is the definitive reference with regard to the subject and is to be commended for its breadth of vision and its recognition of the fact that we must not be content with present achievements in this field.

REGINALD M. ATWATER

Clinical Laboratory Methods and Diagnosis—*By R. B. H. Gradwohl. (4th ed.) St. Louis: Mosby,* 1948. 3 vols. 3,275 pp., 1,111 illus., 58 color plates. Price, $40.00.

The 4th edition of this comprehensive manual closely follows the pattern of previous editions but has again been enlarged and expanded. The work grew from a single volume to two volumes with the 3rd edition in 1943 and has now become a three volume text. As the author states in the preface, it has also outgrown the capacity of a single author and many experts in special fields are listed as collaborators.

The scope of these volumes can perhaps best be indicated by naming the division headings. The first two volumes deal with urine analysis, blood chemistry, hematology, blood groups and transfusion, gastric analysis, puncture fluids, feces, bacteriology, serology, postmortem examinations, tissue cutting and staining, preparation of museum specimens, toxicology, crime detection, basil metabolism, and electrocardiography. These two volumes carry a single index and can be considered as one work. The third volume is actually a separate text on parasitology and tropical medicine written jointly by Dr. Gradwohl and Dr. Pedro Kourí of Havana, Cuba. It contains sections on protozoölogy, helminthology, and diseases caused by spirochetes, viruses, and arthropods.

Each of the chapters contains detailed descriptions of laboratory technics closely interwoven with a discussion of the significance of the findings, with frequent correlations with clinical evidence and case histories drawn from many sources. Several of the sections are actually textbooks in themselves, for instance, the section on hematology occupies 399 pages and is followed by a chapter of 166 pages on blood groups, including Rh and transfusion.

It is impossible in a review to convey adequately an idea of the wealth of detail that appears throughout the work, but as an example the section dealing with Salmonella presents: the clinical manifestations of salmonellosis, the nomenclature, morphology, and biochemistry of the group, the antigenic structure, including H-O, Form, V-W, S-R and phase variations, typing procedures and a complete tabulation of the antigenic structure of some 150 species. One finds a similar complete detailed coverage of practically all the subjects.

The volumes are profusely illustrated with photographs, photomicrographs, color plates, sketches, diagrams, and charts. Source references are given throughout the text as footnotes.

While the book deals primarily with clinical and diagnostic medicine, it also includes a short section on sanitary bacteriology, including restaurant sanitation, the microbiology of frozen foods, and the bacteriological examination of water and milk. Unfortunately this section does not seem to have been brought up-to-date in the same manner as other sections. Methods for the bacteriological examination of water and milk do not conform to present A.P.H.A. practice. Neither brilliant green bile lactose broth nor T.G.E.M. agar is mentioned, and all incubation temperatures are specified as 37°. The reference for the methylene blue reduction test is the 6th edition (1934) of A.P.H.A. Standard Methods which is at considerable variance with the current edition.

As public health laboratories are called upon to increase their scope of service in respect to clinical and diagnostic procedures relating to all diseases, they will need authoritative reference works covering the entire range of clinical practice. The present volumes are eminently suited to meet such needs.

E. K. KLINE

Survey of Food and Nutrition Research in the United States, 1947—*By The Committee on Survey of Food*

and Nutrition Research of the Food and Nutrition Board, C. G. King, Chairman. Washington: National Research Council, 1948. 306 pp. Price, $1.00.

As the title implies, this book is a compilation of nutrition research projects under way in 1947 in academic, governmental, and industrial laboratories. The work gives the titles of 4,086 projects, classified under physiology, chemistry, technology, economics, bacteriology, and psychology, with numerous sub-classifications. The listing of individual projects also gives the institution and any supporting organization in each case. A list of 4,523 investigators with their institutional connections is also given. A complete subject index is included.

The book should prove to be a valuable reference work in the field covered.

PAUL L. DAY

A Program for the Nursing Profession—*By the Committee on the Function of Nursing. New York: Macmillan,* 1948. 106 pp. Price, $2.00.

A Program for the Nursing Profession prepared by the Committee on the Function of Nursing is a momentous document in more ways than one. It springs from a committee of 12 members, nine of them representing eastern universities, which undertook an appraisal of the nursing situation at the invitation of the Division of Nursing Education of Teachers College, Columbia University. Five doctors and three nurses served on the committee. It is a brief report, undocumented but supplied with some general references to source material.

The report presents in terse form the current nursing situation in its social and economic aspects now familiar to professional groups, but goes far beyond the present. It sets a goal for 1960 of a ratio of two practical nurses, trained by a year of preparation in an approved school of practical nursing, to one professional nurse, prepared in a 4 year program in a college or university with school of nursing affiliation. It assumes the gradual complete disappearance of the present 3 year course from which four-fifths of professional nurses are now drawn. Under this plan a total of 600,000 nurses would be anticipated in 11 years.

Coming as it does from a thoughtful group of experts and as a partial corollary of the Brown report (*Nursing for the Future*), these recommendations deserve very careful study and discussion and quick action if they are to be implemented in time to realize the goal. The most serious lack in the report seems to this reviewer, scant attention to the possibility of (a) failure to recruit the 56,000 practical nurses needed each year to supply the quota in 1960, and (b) the difficulty of covering the necessary training in 12 months in what will be converted professional schools. At present the 58 approved schools of practical nursing offering 9–18 months courses graduate about 1,100 nurses yearly and are not filled to capacity, while the subject matter covered is on a more elementary level in most instances than that suggested for the new practical nurses.

If ever a report presented—that well worn word—"a challenge," this is it.

DOROTHY DEMING

A.P.H.A. membership application blank on page XXXV

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

BLOOD TRANSFUSION. Elmer L. DeGowin, Robert C. Hardin, and John B. Alsever. Philadelphia: Saunders, 1949. 587 pp. Price, $9.00.

CANCER OF THE ESOPHAGUS AND GASTRIC CARDIA. Edited by George T. Pack. St. Louis: Mosby, 1949. 185 pp. Price, $5.00.

CANCER PROBLEM, THE. Shields Warren. New York, N. Y.: American Cancer Society, Inc., 1948. 27 pp.

COMMON SKIN DISEASES. A. C. Roxburgh (8th ed.). Philadelphia: Blakiston, 1949. 497 pp. Price, $7.00.

DO'S AND DON'TS FOR HEALTH HAPPINESS AND ABUNDANT LIFE. John T. Sutter. Bluffton, Ohio: Bluffton News Printing and Publishing Co., 151 pp.

ESSENTIALS OF ZOOLOGY. U. A. Hauber. New York: Appleton-Century-Crofts, 1949. 374 pp. Price, $4.00.

FACTS ABOUT NURSING, 1948. New York: American Nurses Association. 102 pp. Price, $.35.

FUNDAMENTAL EDUCATION. Bulletin 1948 No. 13. Washington: Superintendent of Documents, U. S. Gov. Ptg. Office, 1948. 28 pp. Price, $.10.

HOSPITAL IN CONTEMPORARY LIFE, THE. Nathaniel W. Faxon. Cambridge, Mass.: Harvard University Press, 1949. 275 pp. Price, $5.00.

HUMAN RELATIONSHIPS IN PUBLIC HEALTH. Report of an Institute on Mental Health in Public Health. Geddes Smith. New York: The Commonwealth Fund, 1949. 18 pp.

INDUSTRIAL HEALTH DEPARTMENT FUNCTIONS AND RELATIONSHIPS. Medical Series: Bulletin No. VIII. C. O. Sappington. Pittsburgh: Industrial Hygiene Foundation, 1948. 98 pp. Price, $2.00.

LUNG DUST LESIONS VERSUS TUBERCULOSIS. Lewis Gregory Cole. White Plains, N. Y.: American Medical Films. 459 pp. Price, $10.00.

MAN'S PLACE IN GOD'S WORLD. A Psychiatrist's Evaluation. Sol W. Ginsburg. New York: Hebrew Union College—Jewish Institute of Religion, 1949. 30 pp. Price, $.50.

MANUAL OF CLINICAL LABORATORY METHODS. Opal E. Hepler. Springfield, Ill.: Thomas, 1949. 359 pp. Price, $8.50.

MAYO CLINIC DIET MANUAL. Committee on Dietetics of the Mayo Clinic. Philadelphia: Saunders, 1949. 329 pp. Price, $4.00.

MEASUREMENTS OF THE PUBLIC HEALTH. F. A. E. Crew. Edinburgh, Scotland: Oliver & Boyd, Ltd., 1948. 237 pp. Price, 18/-net.

OXIDATION-REDUCTION POTENTIALS IN BACTERIOLOGY AND BIOCHEMISTRY. L. F. Hewitt (5th ed.). London, England: Staples Press Ltd., 1948. 119 pp. Price, 4s.6d.

PERIODONTAL DISEASES. Hamilton B. G. Robinson and Donald A. Kerr. Nashville, Tenn.: State Dental Association, 1948. 40 pp.

PRIMERS IN THE HEALTH AND PERSONAL DEVELOPMENT PROGRAM OF THE CURRICULUM FOUNDATION SERIES:

HAPPY DAYS WITH OUR FRIENDS. Elizabeth Montgomery, W. W. Bauer and Williams S. Gray. Grade I. 95 pp. Price, $.96.

YOU. Dorothy Baruch, Elizabeth Montgomery, and W. W. Bauer. Grade 5. 273 pp. Price, $1.48.

YOU AND OTHERS. Helen Shacter and W. W. Bauer. Grade 6. 272 pp. Price, $1.56. Chicago, Ill.: Scott, Foresman and Co., 1948.

PSYCHODYNAMICS AND THE ALLERGIC PATIENT. Harold A. Abramson. Minneapolis, Minn.: American College of Allergists, 1948. 81 pp. Price, $2.50.

RECENT ADVANCES IN RESPIRATORY TUBERCULOSIS. Frederick Heaf, and N. Lloyd Rusby (4th ed.). Philadelphia: Blakiston, 1948. 290 pp. Price, $5.50.

RESEARCH STORY OF INFANTILE PARALYSIS. Harry M. Weaver. New York: National Foundation for Infantile Paralysis. 28 pp.

RHEUMATIC FEVER. Nursing Care in Pictures. Sabra S. Sadler. Philadelphia: Lippincott, 1949. 144 pp. Price, $3.50.

SANITATION AND PUBLIC HEALTH IN HONDURAS. U. S. Government and the Republic of Honduras. Teguciagalpa, D. C., Honduras: Institute of Inter-American Affairs, 1948. 110 pp.

SLOUGH INDUSTRIAL HEALTH SERVICE, THE. Annual Report 1948. Slough, England: Slough Social Centre. 2s 6 pence.

SOCIAL MEDICINE: ITS DERIVATIONS AND OBJECTIVES. Edited by Iago Galdston. New York: The Commonwealth Fund, 1949. 293 pp. Price, $2.75.

SUGGESTED STANDARDS FOR HOMES FOR THE AGED. Prepared by Conference Group on Welfare of the Aged (6th ed.). New York:

Welfare Council of New York City, 1948. Price, $.50.

TESTS AND MEASUREMENTS. APPLIED TO NURSING EDUCATION. Hyman Krakower. New York: Putnam, 1949. 176 pp. Price, $3.50.

VETERANS ADMINISTRATION TECHNICAL BULLETINS. Series 10. 1946–1947. Washington: Veterans Administration.

YOUR TEETH—HOW TO SAVE THEM. Herbert Yahraes. New York: Public Affairs Committee, 1949. 30 pp. Price, $.20.

THE FOLLOWING REPORTS HAVE BEEN RECEIVED

BUDGET SURVEY OF STATE MENTAL HOSPITALS 1948. Conducted by the Illinois Department of Finance. Springfield, Ill.: Illinois State Department of Finance, 1948. 1948.

CALIFORNIA PUBLIC HEALTH REPORT. July 1, 1947–June 30, 1948. San Francisco, Calif.: State Department of Public Health. 124 pp.

COLORADO CIVIL SERVICE, PROGRESS OF 1946–1948. Denver, Colo.: State Civil Service Commission.

COLUMBIA COUNTY (New York) DEPARTMENT OF HEALTH 15th ANNUAL REPORT 1947. Hudson, New York: Columbia County Department of Health. 36 pp.

COOPERATION FOR RURAL HEALTH. MISCELLANEOUS REPORT 123. Helen L. Johnston, Washington: Farm Credit Administration, U. S. Dept. of Agriculture, 1948. 55 pp.

DIGEST OF CONNECTICUT ADMINISTRATIVE REPORTS 1947–1948. Vol. II. Includes Sections on Natural Resources, Health and Sanitation, Charities, Hospitals, Corrections, Educations. Hartford Conn.: State Department, 1948. 593 pp.

DUKE ENDOWMENT YEAR BOOK No. 16. Including Annual Reports of the Hospital and Orphan Sections. Charlotte, N. C.: The Duke Endowment. 47 pp.

FOR BETTER HEALTH IN NEBRASKA. ALMANAC 1949. Lincoln, Nebraska: State Department of Health. 48 pp.

HEALTH OF OUR IOWA FAMILIES, THE. Des Moines, Iowa: State Department of Health. 29 pp.

INDIVIDUAL AND VENEREAL DISEASE, THE. An Analysis of the Literature Dealing with Psycho-Social Characteristics of Patients. Margaret K. Lumpkin. New Haven, Conn.: Department of Public Health, Yale University. 71 pp.

OHIO, STATE DEPARTMENT OF HEALTH. 1947 ANNUAL REPORT. Columbus, Ohio: State Department of Health, 1948. 118 pp.

INSTITUTE OF INTERNATIONAL EDUCATION. 29th ANNUAL REPORT OF THE PRESIDENT, October 1, 1948. New York, N. Y.: Institute of International Education. 136 pp.

IOWA HEALTH COUNCIL PLAN. Build Better Health Thru Community Organizations. Des Moines, Iowa: State Department of Health.

PROVINCE OF MANITOBA, CANADA. ANNUAL REPORT 1947. Winnipeg, Manitoba: Department of Health and Public Welfare, 1948. 296 pp.

PUBLIC HEALTH NURSING SERVICE. ANNUAL REPORT 1948. Charlotte, N. C.: City Health Department.

SOCIAL CONTROL OF VENEREAL DISEASE, THE. REPORT OF A NATIONAL INQUIRY OF PROFESSIONAL OPINION. New Haven, Conn.: Department of Public Health, Yale University. 151 pp.

WEST VIRGINIA MERIT SYSTEM COUNCIL. 6th REPORT, July 1, 1947 to June 30, 1948. Charleston, W. Va.: Merit System Council. 41 pp.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

There Are about 148,000,000 of Us —Our population increased 2½ millions last year thanks to a near-record of births and the lowest death rate ever plus a little immigration. Unless something unforeseen happens we should exceed the 150 million mark in the 1950 census.

ANON. Population Increase Large in 1948. Statist. Bull. Metrop. Life Insur. Co. 29, 12:1 (Dec.), 1948.

Required Reading — Pseudo-scientific and plain nostrums cunningly foisted on credulous doctors and desperate try-anything cancer victims are told off one by one. Then come the treatments based upon theories of ques-

tionable promise. In somebody's eyes you may appear as an expert. So be prepared.

ANON. Cancer and the Need for Facts. J.A.M.A. 139, 2:93 (Jan. 8), 1949.

Tracer Atom's Anniversary—Professional curiosity will drive you to this symposium on atomic energy and its relations to medical research and human welfare generally. In it we're promised a lot more information about these subjects through scientific papers and books now in the throes of composition.

ABERSOLD, P. C. Isotopes for Medicine (and two related papers). J.A.M.A. 138, 17:1222 (Dec. 25), 1948.

Mental Vitamins—This is a plea—and a delightfully presented plea—that clinicians and nurses in children's clinics give attention to relieving emotional difficulties as well as bodily ailments. Modern drugs and modern parent-training give more time to think about minds, says the writer. The urge to quote most of the paper is strong.

ANDERSON, C. W. Some Aspects of the Mental Welfare of Children and Infants. Pub. Health 62, 3:47 (Dec.), 1948.

Note for Your Notebook—Epidemiologic studies suggest three ways by which Q fever may have been spread in a recent outbreak: working in a dairy, living close to a dairy or stockyards, drinking raw milk.

BECK, M. D., *et al.* Q Fever Studies in Southern California. Pub. Health Rep. 64, 2:41 (Jan. 14), 1949.

New-borns Will Respond to Antigens—At the first, fifth, and ninth week of life 200 babies were given a triple antigen of diphtheria and tetanus toxoid and pertussis vaccine. A month later all infants showed a "protective level" titre against tetanus, 84 per cent were found safe against diphtheria, and 60 per cent were considered to be protected against whooping cough. A booster dose later raised the percentage of immunes in the latter categories.

DI SANT' AGNESE, P. A. Combined Immunization Against Diphtheria, Tetanus and Pertussis in Newborn Infants. Pediatrics 3, 1:20 (Jan.), 1949.

Social Security—Public medical care, and health and welfare services already established, plus extensions and supplements reasonably to be expected, plus growing coverage of voluntary prepayment schemes are all added up into a comprehensive picture to preface a measured statement of the A.M.A.'s reasons for opposing compulsory sickness insurance.

FISHBEIN, M. Health and Social Security. J.A.M.A. 138, 17:1254 (Dec. 25), 1948.

Good, Solid Words Are These—If a person eats more than he needs he grows fat; if less, he gets thin. The causes are conjectural, but one can be certain that emotions, training, and habit are influential. Endocrine disorders rarely are responsible. Can you resist reading the rest?

GASTINEAU, C. E., *et al.* Treatment of the Fat and the Lean. J.A.M.A. 139, 2:86 (Jan. 8), 1949.

After Careful Examination—In the wake of the 1947 New York City smallpox epidemic, 5 million were vaccinated in a hurry. Following wholesale immunization, there occurred 45 cases of encephalitis that may have been post-vaccinal. Most made a complete and prompt recovery. The 4 who died showed, post-mortem, no characteristic signs.

GREENBERG, M., AND APPELBAUM, E. Post-vaccinal Encephalitis. Am. J. M. Sc. 216, 5:565 (Dec.), 1948.

Their Goal Remains the Same—As everyone but the office janitor must know by now, revised "dietary allowances" appeared in 1948. This excellent discussion of the changes—which

are essentially of a minor nature—will prove useful for you as a reminder of what the allowances are, and are not, supposed to be.

JEANS, P. C. Recent Revisions in the Recommended Dietary Allowances. J. Am. Dietet. A. 25, 1:13 (Jan.), 1949.

We Could Tell Him a Few Things—England has abandoned compulsory smallpox vaccination—which hasn't been very compulsory for many years. In the course of time the population will be largely unprotected. What will happen? In view of the long experience of one unvaccinated town there is no real cause for alarm, says this M.O.H.

MILLARD, C. K. The End of Compulsory Vaccination. Brit. M. J. 4589:1073 (Dec. 18), 1948.

Young Old People—Inspired words are these! "Life ends for many old people as naturally as it began, with little distress, in the midst of full, forward-looking participation in society, with no period of custodial care or sitting on the side-line benches. The geriatrician believes that this happy ending can be achieved by many more."

MONROE, R. T. Medical Problems of Old Age. New England J. Med. 240, 2:57 (Jan. 13), 1949.

"New Profession . . . Health Physicist"—If your digestive capacity is equal to the job, you'll get a lot of nourishment from the capsule doses of scientific findings in a great variety of subjects ranging from genes to cosmic rays and not neglecting nuclear energy's effect on public health.

MOULTON, F. R. The A.A.A.S. and Organized American Science (and) Abstracts of Papers Presented at the A.A.A.S. Centennial Celebration. Science 108, 2813:573 (Nov. 26), 1948.

Productive Field—Prevalence rates of 8 per cent + of unsuspected pulmonary tuberculosis among the inmates and 2.7 per cent among the attendants in 7 state mental hospitals are statistics worth remembering.

ORCHSLI, W. R. Tuberculosis Control Program of Nine California Mental Institutions. Pub. Health Rep. 64, 1:4 (Jan. 7), 1949.

Intellectual Adventure—Can you write genially and intelligibly about your own particular job in words so clear that an educated layman will respond, "Well, I'm glad to get that straight, at last."? For an outstanding example of what you ought to be able to do, hunt out this dedicatory address.

RABI, I. I. The Atomic Nucleus, A New World to Conquer. Science 108, 2816:673 (Dec. 17), 1948.

Dental Health Goals—Mostly this paper is about the dental research projects and dental health field demonstrations now underway by the U. S. Public Health Service. There is a lot more in it which should be known by any health worker.

SCHEELE, L. A. A Forward Look at Dentistry. J. Am. Dent. A. 37, 6:627 (Dec.), 1948.

Widely Variable, They Pronounce It—In case you'd like to know what the mumps virus looks like, there are some excellent electron micrographs accompanying this article. What else you will get from it, I cannot predict, for the discussion was way over my head.

WEIL, M. L., *et al.* Purification pH Stability and Culture of Mumps Virus. J. Immunol. 60, 4:561 (Dec.), 1948.

Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

POPULATION, like race, is one of the most publicized biological factors implicated in social developments. Historians, for instance, have endeavored to explain the decline of Rome as primarily a demographic phenomenon. Other social scientists have been interested in population because of particular contemporary problems. In the 19th century this was a fear of overpopulation and population pressure. Later, in Western Europe, the decline of fertility led governments to introduce various measures designed to affect the trend of fertility. Specific problems thus led to the development of population policies.

Among the factors affecting population, war takes a prominent place. The effects of World War II will be felt for many years, just as the impact of the war of 1914–1918 is still clearly seen in the demographic structure of Germany.[1]

CIVIL WAR AND DEMOGRAPHY IN SPAIN

The Spanish Civil War has been called a rehearsal for World War II. It may therefore be of interest to consider the effects of the internecine struggle on the Spanish people before glancing at the influence of World War II on other European populations. To ascertain the impact of the Civil War on the population, Verdugo[2] studied the trend of certain demographic phenomena. Among these were birth and death rates, mortality of infants under 1 year, and of children aged 1 to 5, stillbirths, and the occurrence of such diseases as tuberculosis, typhus fever, typhoid fever, and smallpox. The period considered comprised the ten years from 1933 to 1942.

The birth rate declined considerably during the war but rose again in the post-war years. Nevertheless, it did not reach the level that had existed in 1936. General mortality, as well as infant and child mortality, increased from 1937 until 1940 when a decline set in. The stillbirth trend was variable, in general tending to diminish except for the years 1939 and 1942. Typhoid fever and tuberculosis increased markedly during the war years, the former especially in 1938 and 1939. However, following the termination of hostilities typhoid dropped rapidly, while tuberculosis has shown no appreciable tendency to diminish. Smallpox rose in some degree during the immediate post-war years, while typhus fever did not show an appreciable increase until 1941–1942. On the whole, Verdugo concludes, Spain has recovered quickly from the demographic disturbances occasioned by the Civil War.

EXAMINATION OF UNIVERSITY STUDENTS IN WÜRZBURG

The impact of the war and the immediate post-war period on a specific group of the German population is illuminated by an investigation reported by Bunse.[3] In the winter semester of 1946–1947, 1,750 out of the 2,500 students enrolled at the University of Würzburg were subjected to thorough clinical and röentgenological investigation. This represented 70 per cent of the student body. Among the male students, 80.2 per cent were in the 18–25 age group, while 91 per cent of the female students were in the same group. The group examined contained 1,422 male and 328 female students.

It was found that 10.2 per cent of the male students were underweight by 5 kilograms or more while among the fe-

male students only 2.4 per cent were underweight to this extent. Active tuberculosis was found in 0.77 per cent of the men. This may be compared with the figure of 1.35 per cent found among students in Munich and 0.42 per cent among students in Jena. Bunse also compares his finding with the result of examinations of Würzburg students in 1933–1935. At that time 0.3 per cent of the students examined were found to have active tuberculosis. On the basis of this comparison Bunse concludes that there has been almost a threefold increase in cases of active tuberculosis among Würzburg students.

Anemic states were not infrequent. Among male students 11.2 per cent were found to have hemoglobin values under 65, while 30.8 per cent had values under 70. In 17.5 per cent of the male students the number of erythrocytes was less than 3.5 million. Among the women students 34 per cent had hemoglobin values under 65, and 59 per cent under 70, while in 48.4 per cent the number of erythrocytes was under 3.5 million.

Refractive errors were found in 40.9 per cent of all the students. Among the male students 38.3 per cent were hyperopic and 2.4 per cent myopic. Among the women 38.7 per cent were hyperopic and 2.1 per cent myopic.

Cardiac findings, chiefly compensated mitral defects, are reported in 1.4 percent of the students. Most of these had been diagnosed previously.

BIRTHS IN DENMARK FROM 1940 TO 1945

Prior to World War II the Danish birth rate had been declining, but during the German occupation this trend was reversed and gave way to a rapid rise. Hedemann tries to explain this phenomenon.[4] In 1939 the absolute number of live births was 67,900 and in 1941 it was approximately 71,300. In 1944, however, the number had risen to 90,600 and in 1945 to 95,100. During the occupation period about a third of a million babies were born. Of these it is estimated that only about 4,000 to 5,000 were attributable to German soldiers. There thus remains the problem of explaining a rise in the birth rate at a time when one might more reasonably expect it to fall. Hedemann is aware that demographic phenomena are not just biological, but that demographic change results equally from other elements deeply rooted in the social and psychological environment. Thus, he points out that in 1945 there were 20,000 more women between the ages of 15 and 49 than there had been in 1940. At the same time he also calls attention to an apparent change in social attitude toward childbearing, which became more "fashionable" than it was before the war. Such factors as constant employment, high wages, and restrictions on extramural social activities by curfews are also significantly implicated. It is clear that the increased birth rate resulted from the interaction of a number of factors, some measurable and others intangible.

CHINESE POPULATION PROBLEMS

Students of Chinese affairs have long been aware that population is a crucial factor in the health and welfare problems of China. The magnitude of these problems, in their quantitative as well as qualitative aspects, have led some to what is essentially a counsel of despair. Thus, in his recent book, *China. The Land and the People*, Winfield,[5] after discussing the state of public health, ends with the suggestion "that public health measures which can save millions of lives should not be practiced in China on a nationwide scale until the stage is set for a concurrent reduction of the birth rate. Existing misery and poverty can be permanently eliminated only when there are fewer, healthier people, with longer life expectancy and greater economic security. The future welfare of the Chinese people is more dependent

on the prevention of births than on the prevention of deaths." This is indeed Malthusianism with a vengeance! However, there is some evidence that the birth rate among the poor is somewhat lower than among the well-to-do. Abortion though illegal is practised, and it has been found that poor families do use contraception.[6] Furthermore the published literature shows that medical and public health workers in China in dealing with specific problems do not do so in terms of such a monistic either/or philosophy.

There is a marked awareness of the need for more knowledge. H. S. D. Garven[7] calls for more studies of the normal in the Chinese subject. There is as yet little or no knowledge of the limits of variability of many of the simple, easily measurable characteristics both anatomical and physiological in Chinese. Some studies have been made, but the figures available for varying social class, locality, occupation, climate, and diet are as yet quite meager. Such data must be forthcoming as a basis for all health work.

In the same issue of the *Chinese Medical Journal*, the editor proposes a study, along the lines suggested by Garven, of the physical, physiological and mental development of one group of Chinese, the Cantonese.[8]

Information of the type contained in these two proposals is offered by Chen-Chia Lee.[9] A statistical study of 3,550 full term infants born in West China showed an average weight at birth of 3,080 grams, irrespective of sex. The average for boys is 100 grams more than for girls. These birth weights were correlated with the season, and with the age, parity, and nutritional status of the mother. The mother's nutrition seemed to make little difference in the birth weight. On the other hand, it appears that infants born in the winter and spring are heavier than those born during other seasons. Infants born in West China are reported to be smaller than those born in North and Central China, but heavier than Cantonese babies.

Trachoma is one of the common chronic diseases in China and one of China's most important medical and public health problems. Chen-Chung Wu reports on trachoma in Changsha on the basis of hospital statistics.[10] Of 1,340 patients attending the eye clinic of the Hsiang-Ya Hospital at Changsha 1,017 (75.8 per cent) suffered from trachoma. The highest age incidence was between 10 and 40 years of age. Occupational incidence for this group was found to be highest among students and teachers, merchants, coolies, and housewives respectively. It should be noted that the apparent higher incidence among teachers and students is probably due to the fact that they come for examination and treatment as soon as any symptoms are noted. Similarly, merchants come because they can well afford the treatment.

Flowers[11] discusses the causes of blindness in China and links this problem to the greater one of raising the standard of living and education among the Chinese people. He points out that most of the blindness in China has direct and indirect causes. These he lists as follows:

Direct Causes	*Indirect Causes*
1. Smallpox	Lack of vaccination
2. Trachoma	Poverty, dirt, low standard of hygiene
3. Ophthalmia neonatorum	Poor midwifery
4. Phlyctenular conjunctivitis	Poverty, low standard of living
5. Keratomalacia	Dietary deficiency
6. Ulcerative keratitis	Poverty, ignorance, poor hygiene, low standard of living
7. Mucopurulent conjunctivitis	

Flowers concludes that an attack upon the vast problem of blindness in China must therefore include adequate medical treatment plus the greater general task of public education, including health education.

DECLINING MORTALITY IN WESTERN EUROPE AND THE UNITED STATES

Examination of the general mortality rate for various countries shows that a significant decline has occurred since the middle of the last century.[12] Comparison of the figures for the period 1841–1845 with those for 1945 reveals a drop for France from 227 to 156 per 10,000 inhabitants, for Belgium from 235 to 147, for Holland from 239 to 151, for Denmark from 196 to 105, and for England from 214 to 126. Moine emphasizes that between the decade 1846–1855 and the year 1936 the risk of death for persons of all ages has dropped to 69.9 per cent of its initial value for males and to 60.4 per cent for females. This decline is due particularly to the mortality changes in the younger age groups, and is attributed by Moine to advances in preventive and therapeutic medicine as well as in social welfare.

When mortality is examined by cause, it is found that in France from 1907 to 1936 the number of deaths due to tuberculosis, other communicable diseases, and diseases of the digestive and respiratory systems has declined, while the deaths ascribed to diseases of the cardiovascular, nervous and urogenital systems, cancer, and senility have risen. As an example Moine takes tuberculosis, comparing the periods 1889–1893 and 1934–1938. This comparison shows that for males the deaths from tuberculosis fell to 89 per cent of the initial value (174 to 155) and for females to 83 per cent (130 to 108).

In another study Moine pursues his analysis of mortality by comparing mortality in France and in the United States.[13] He points out that there has been a marked decrease since 1900. In the United States this decline is notable particularly in the case of such causes as the enteric diseases and diphtheria. On the other hand, increase in cancer, cardiovascular diseases, diabetes, and accidents presents a serious problem. A striking difference between France and the United States is the number of deaths attributed to senility, 8.9 per 10,000 in the United States and 193 per 10,000 in France. It is not unlikely, however, that this difference is due in part to better diagnosis and reporting in the United States. France also has a larger number of deaths attributed to tuberculosis and diseases of the respiratory system (+ 111 per cent and + 61 per cent per 100,000 population respectively). On the other hand, France has fewer deaths ascribed to cardiovascular disease and to diseases of the urogenital tract.

STILLBIRTHS AND MORTALITY OF PREMATURES IN RUMANIA

As part of an investigation of the sanitary environments of middle and lower class urban women, Slobozianu studied 24,000 births recorded from 1916 to 1942 in the First Obstetrical Clinic, Filantropia Hospital of Bucharest.[14] In rural areas the stillbirth rate has been 2.2 per cent, while in urban districts it has been 5.3–5.5 per cent and in some cities even 8.9 and 10.67 per cent. In the Obstetrical Clinic the stillbirth rate from 1921 to 1924 was 4.7 per cent, while from 1937 to 1942 it was 8.2 per cent, which is in agreement with the general increase observed throughout Rumania.

Premature mortality was 3.7 per cent in rural areas and 3–3.1 per cent in towns. In the clinic it was found to be 2.45 per 100 live births. Syphilis was found in 16.1 per cent of premature births that occurred in the Obstetrical Clinic between 1921 and 1924, and in 18.21 per cent of those during the period

1937–1942. To alleviate the situation, Slobozianu recommends the improvement of obstetrical practice, increased prenatal care including social assistance to needy mothers, and special attention to the treatment of syphilis in pregnant women.

Rumania is at present considerably concerned with improving the "biological capital" of the country, that is, its population.[15] One of the problems involved is that of abortion. In view of the large number of abortions that are performed and the serious consequences that these have, it is suggested that the legislation of abortion be revised. Crainicianu and his collaborators suggest that in addition to therapeutic and eugenic indications for abortion, place be reserved for a social indication. The author proposes the establishment of a commission attached to certain hospitals which would establish in each case the need for intervention. This would be a transitory measure to be abandoned as soon as the economic and social conditions in Rumania will permit the institution of effective measures of social assistance to mothers and infants.

The similarity of this proposal to actual practice in the Soviet Union in the years immediately following the revolution is readily apparent. It will be worth observing Rumanian developments to see to what extent these will parallel the Russian experience.

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ASSOCIATION NEWS

SEVENTY-SEVENTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
NEW YORK, N. Y., OCTOBER 24–28, 1949

ROSTER OF SANITARY AND PUBLIC HEALTH ENGINEERS

The following is of importance to all sanitary and public health engineers:

Efficient utilization of our national resources, both human and otherwise, is difficult during periods of national emergency. Criticism has been directed against the federal government and its agencies for the inefficient use of sanitary and public health engineers during World War II.

The National Security Resources Board is charged with the responsibility of planning for the efficient use of our national resources in any emergency. James A. Crabtree, Medical Director, U. S. Public Health Service, has been assigned to the NSRB to develop methods for the best utilization of medical and public health personnel and facilities. One of the first goals of Dr. Crabtree's Medical Division is the preparation of comprehensive rosters of professional personnel. Should another national emergency arise, these rosters will be used in developing programs that will assure the best use of all professional people.

Arrangements have been made with the American Public Health Association, through the Engineering Section Project, for the preparation of a roster of all sanitary and public health engineers in the United States, other than those in federal service. The magnitude of this task can be appreciated when it is realized that there is no comprehensive list available similar to the membership list of the American Medical Association, the American Nursing Association, or the American Dental Association. Neither are there state professional registers such as exist for physicians, nurses, and dentists.

Lists of engineers are now being prepared from membership lists of the various professional and technical societies. The Conference of State Sanitary Engineers has volunteered its active support and assistance. Other organizations and even individuals are being asked to help. Questionnaires will be sent out to individuals in the near future. Prompt return of the forms is requested. It will be to the advantage of each engineer to assure his proper classification so that proper use of his training and experience can be obtained. Any engineer not receiving a questionnaire by July 1 should communicate directly with the

Engineering Section Project
American Public Health Association
1790 Broadway
New York 19, N. Y.

so that his name can be entered on the roster and he be furnished with a copy of the questionnaire.

Undoubtedly there are individuals professionally qualified in sanitary or public health engineering who are not now actively engaged in that field. Since they may not belong to any of the more important professional or technical engineering societies they may not see this notice. You are urged to advise the Engineering Section Project of the names and addresses of such people.

GLOSSARY—WATER AND SEWAGE CONTROL ENGINEERING

After 12 years of preparation, the *Glossary—Water and Sewage Control Engineering* will be ready for distribution by early April. This volume has been prepared by a joint committee composed of representatives of the A.P.H.A., American Society of Civil Engineers, American Water Works Association, and the Federation of Sewage Works Associations. Originally, two Association committees participated in the preparation of the *Glossary*. The first, preparing water works terms, consisted of

Earle B. Phelps, *Chairman*
Sol Pincus, C.E.
Ralph E. Tarbett, C.E.

The second, assigned the preparation of sewage works terminology, consisted of

Gordon M. Fair
H. A. Whittaker

A final review committee, composed of a representative from each sponsor organization, brought the two lists of terms together and prepared the final report. Sol Pincus represented the A.P.H.A. on this committee.

Everyone who uses water or sewage control engineering terms will find the *Glossary* invaluable in preparing reports, articles for publication, or in speaking to professional groups. Widespread use of the accepted definitions should eliminate differences in the use of technical terminology.

The volume, almost 300 pages in length, is available to A.P.H.A. members through the Association Book Service at $1.00 per copy. A cloth-bound edition will be available at $2.00 a copy. Order your copy now to be sure you get it without delay. Non-members may order directly from the American Society of Civil Engineers, 29 W. 39th St., New York City, $2.00 for paper-bound, $3.00 for the cloth-bound volume.

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FELLOWSHIP IN THE AMERICAN PUBLIC HEALTH ASSOCIATION

The grade of Fellowship was established in the American Public Health Association in 1922. Professional workers in public health are eligible for election as Fellows under certain conditions and as an indication that they have achieved a recognized professional standing. As of January 1, 1949, the total membership of the Association was 11,102, including 2,093 Fellows, or almost 19 per cent of the total.

Questions are frequently asked regarding the requirements for Fellowship and the following statement outlines the provisions of the By-laws governing qualification and election.

Persons who have been members of the Association for at least two years and who have reached their 30th birthday are eligible to apply if, in their opinion, they meet the conditions of one or more of the six clauses in the By-laws defining "an established professional standing." These six possible approaches are as follows:

a. A person who has rendered acceptable service for two or more years in a responsible public health position and who has been awarded in course a degree of Doctor of Public Health, Doctor of Science in Public Health, Doctor of Philosophy in Public Health, Doctor of Medicine, with at least one year of graduate study in public health in a university, Master of Public Health, Diploma in Public Health, or other equivalent degrees, according to standards approved by the Executive Board of the American Public Health Association.

b. A person who has been awarded in course an academic or professional degree involving training in public health and who has been regularly engaged in health work for at least five years, having rendered meritorious service as a health officer or in responsible charge of work in either a public or private health agency.

c. A person who has done notable original work in public health or preventive medicine of a character to give him a recognized standing.

d. A person regularly engaged in health work for at least five years, who has given evidence of special proficiency, who has attained a recognized standing.

e. A teacher of public health or one of its constituent sciences who has attained distinction as an expounder of the principles of public health or its constituent sciences. Such a teacher shall have had at least five years' experience as a teacher of public health subjects. Any years of experience as defined in paragraphs "b" and "d" that the applicant may have had shall be considered the equivalent of the same number of years' experience as a "teacher."

f. A person not covered by the above, who has made substantial contributions to public health work in his chosen branch, who has attained a recognized professional standing.

Persons wishing to apply should request a Fellowship application blank from the American Public Health Association Membership Department, 1790 Broadway, New York 19, N. Y. Applications are accepted up to August 1 each year for consideration by the Governing Council at the fall meeting. It is important to make clear that members themselves should take the initiative in submitting such applications. Neither the Sections nor the A.P.H.A. administrative staff are authorized to solicit applications. This means that, although over 3,000 persons have been

duly recognized with this grade of affiliation since 1922, there are other persons well qualified who have never initiated the process of applying for Fellowship. It should be clear that members should not await action by others if they wish to attain Fellowship. It is necessary and proper for them to take the first step.

An application for Fellowship requires sponsorship by two Fellows of the Section with which the applicant desires to be affiliated. These personal signatures are to be obtained by the applicant before submitting the completed application. The A.P.H.A. office will assist, on request, in determining the Section with which prospective sponsors are affiliated. Applications from persons not wishing to be identified with a particular Section and requesting unaffiliated Fellowship may be sponsored by any two Fellows of the Association.

When properly sponsored and otherwise completed, the application is sent to the A.P.H.A. office, after which the list of persons applying is published in the *American Journal of Public Health*, usually in the September issue, but in any case not less than 15 days before the date for the Annual Meeting. An established routine is followed for review by the Section Councils (unaffiliated applications are reviewed by the Executive Board) and by the Committee on Eligibility. This Standing Committee of the Association is made up of one Fellow from each of the 13 Sections, plus a Chairman elected by the Executive Board. This group is under instructions from the Governing Council to examine each application in accordance with the provisions of the clause of the By-laws chosen by the applicant, and to apply the criteria with precision in each case. Final election is by the Governing Council at the second meeting at each annual session.

The privileges of Fellowship include eligibility to serve as an officer of the Association or one of the Sections, Chairman of an Association or Section Committee (over one hundred in number), a member of one of the four Standing Committees, a member of the Governing Council or Executive Board, and the right to vote for the elective members of the Governing Council and on amendments to the Constitution. Some Civil Service and merit system records depend upon Fellowship in the American Public Health Association as an achievement deserving recognition in applicants.

The dues of Fellows are $12.00 annually, and include a subscription to the *American Journal of Public Health* and other services to which members are eligible. Life Membership is available at $200, covering all future annual dues.

Applications for Fellowship to be considered at the 77th Annual Meeting in New York, N. Y., the week of October 24, should be filed with the Association as soon as they are completed, and in any case not later than August 1. For further information, address the Membership Department, American Public Health Association.

A MESSAGE FROM THE CIRCULATION DEPARTMENT

Certain 1948 issues of the *American Journal of Public Health* are needed to complete sets for members and subscribers. The *Journals* that are in short supply are January, March, August, September, and October. It will be appreciated if members or subscribers who can spare any of these issues will mail them collect, addressed as follows: Circulation Department, American Public Health Association, 1790 Broadway, New York 19, N. Y.

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

POSITIONS AVAILABLE

Sanitary Engineer — Well organized county health department. County is part of state student training area, generalized program. Total staff of 12 includes assistant sanitarian and sanitation clerk. County population 44,000, located on Lake Michigan, 140 miles from Chicago. Four weeks annual vacation. Salary range $3,600–4,500 plus travel, dependent on experience. Write: Arthur G. Baker, M.D. Director, Allegan County Health Dept., Allegan, Mich.

Education Supervisor—In a combined agency financed by official and nonofficial funds. Generalized program - graduate affiliation with two university programs; staff consists of 13 public health nurses, 1 clinic nurse, 1 general supervisor, 1 educational supervisor, 2 secretaries, and 1 clerk. One hour from New York City; salary open. Write **Box A-46**, Employment Service, A.P.H.A.

Supervising Public Health Nurse for modern generalized nursing program. Minimum requirements, public health certificate or one year of graduate study in public health nursing. Salary range $3,336–3,816; 40 hour week; retirement plan; sick leave. Write: Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Public Health Nurses: Must have certificate and one year experience. Government field work, Southwestern Oklahoma, good location, over $300 per month, 40 hour week, one month paid vacation, paid sick leave, automatic promotion every eighteen months, retirement system, disability compensation, automobile and travel expense furnished free. Write: P. O. Box 139, Lawton, Okla.

Public Health Staff Nurse, School Health Department. Base Salary $2,600–2,900 depending upon qualifications; 5 day week, 1 month's vacation, retirement plan. Community 124,000 population, adjacent to Washington, D. C. Write: Claire A. Christman, M.D., School Health Dept. 1800 N. Edison St., Arlington, Va.

1. Virologist: Experience in performing diagnostic complement-fixation, agglutination, and neutralization tests, animal inoculations and research in virology. Teaching of medical students and technicians essential. Salary ranges $6,000 upward.

2. Sanitary Chemist: Responsible for and in charge of the chemical and bacteriological examination of milk and water and perform special tests on polluted waters and sewage. Graduate of recognized college with specialization in chemistry and experience in sanitary chemistry in a laboratory or comparable position. Salary $3,750 with $500 bonus which may or may not be permanent. Write: Director of Laboratory, Erie County Laboratory, 2100 City Hall, Buffalo 2, N. Y.

Public Health Nurses for staff positions in county health departments. Open salaries; five day week; extended paid vacations and sick leave; field teaching center for graduate public health nurse students within area. Write: Northern Peninsula Office, Michigan Dept. of Health, Escanaba, Mich.

Public Health Nurses for overseas service. Require supervisory or organizational experience to develop maternal, infant, child care projects and organize small hospitals and dispensaries, as well as develop overall public health program. Speaking knowledge Yiddish or French essential. Beginning salary $4,000 with yearly increments in addition to living cost allowance. Write: Robert Pilpel, Secretary, Medical and Health Committee, American Joint Distribution Committee, 270 Madison Avenue, New York 16, N. Y.

Assistant Health Officer—Opportunity for young physician in large county; northeast; generalized program with emphasis on tuberculosis control. Previous experience and training desirable but not essential. Salary $7,000 to $7,500 plus car allowance and official expenses. Write: **Box A-47**, Employment Service, A.P.H.A.

1. **School Health Physician** with training or experience in public or school health to carry on school health program, examinations, immunizations, etc. Some preschool or well child work included. Salary $5,040 to $6,000 plus mileage.

2. **Director of Tuberculosis Control,** to direct departmental program including

consultation with nurses, patient interviews, and reading of 35 mm., 70 mm., and 14 x 17 chest x-rays. Salary $5,040 to $6,780 plus mileage.

3. **Director of Guidance Clinic**—half-time psychiatrist to direct clinic serving children and adults. Training in child psychiatry preferred. Clinic housed in health department but under auspices of City-County Mental Hygiene Society. Salary commensurate with qualifications.

4. **Public Health Nurses**—senior and junior grade, preferably with public health training for field work in large city-county health department. Excellent supervision. Should have own cars. Salary range, Junior grade, $170–180 per month, senior grade, $200–$245 per month, plus mileage. For any of the above positions write to: Dr. Paul M. Golley, Director, Chattanooga-Hamilton Co. Health Dept., Chattanooga, Tenn.

Assistant Director, M.D. (Maternal and Child Health) with the Los Angeles County Health Department. Beginning salary $6,192. California license will not be required until appointment is offered. An M.D. from an approved medical school and at least two years' recent experience in the practice of medicine in a public health department is required. Six months of the experience must have been in maternal and child health. Write: before March 31 to Los Angeles County Civil Service Commission, Room 102, Hall of Records, Los Angeles 12, Calif.

Non-medical Administrators for positions concerned with training and general personnel administration including position classifications and salary administration for national voluntary agency. Travel at least one-third of time required. Write **Box A-48,** Employment Service, A.P.H.A.

Sanitarian—newly created position, expanding Health Department in Southwestern Michigan. Salary $250 per month plus mileage. Opportunity for study at University of Michigan. Minimum requirements two years' college plus training or experience. Work chiefly food and milk. Write: Director, Lenawee County Health Department, Adrian, Mich.

Two Staff Nurses for generalized Public Health Nursing Program adjacent Washington, D. C. Three weeks paid vacation, sick leave, 40 hour week, merit salary increases, opportunity to attend universities part-time in Washington. Must own car. Write: Personnel Director, Arlington Court House, Arlington, Va.

Public Health Dentist, beginning gross salary $5,700 per year. Duties include conducting demonstration dental clinics with emphasis at present on fluorine programs, evaluating plans for dental health programs, acts as technical consultant to Director, maintains necessary contacts with lay and professional groups, eligibility for licensure, one year training public health dentistry required. Write: Henry A. Kjentvet Personnel Officer, State Board of Health, State Office Bldg., Madison 2, Wis.

Health Officers—Vacancies in County and District Departments, salary $6,600 to $8,500 based upon training and experience. Must be licensed or eligible for licensure in North Carolina. Opportunity for advancement based on merit. Write: Dr. J. W. R. Norton, State Health Officer, Raleigh, N. C.

Bacteriologist—man, location Mid-West Consulting Laboratory. College graduate with major training in bacteriology. Minimum of five years' experience in analysis and research of disinfectants and foods. Conduct and supervise research on disinfectants, foods, water and sewage. Some field work. Write: **Box A-49,** Employment Service, A.P.H.A.

Staff School Nurse for small, well organized school health department Pacific Coast. Beginning salary about $2,850; 35 hour week; work nine calendar months; two weeks vacation Christmas, one week Easter. Annual increment for 10 years, tenure after three years. B.A. and P.H.N. degrees, own car. Send photograph, age, degrees, training and experience, marital status, number of children. Write **Box A-50,** Employment Service, A.P.H.A.

Health Officer for DeWitt-Piatt Bi-County Health Unit. Central Illinois counties half-way between Chicago and St. Louis. Population 35,000, largely rural. Salary range $8,400 and up. Write: Hal E. Gronlund, D.D.S., President, Board of Health, 202½ East Side Square, Clinton, Ill.

POSITIONS WANTED

Health Educator, M.S. in public health (Columbia), single, 23. Eight months field experience in community organization for health; 1 year research experience in nutrition. Position in official or voluntary health agency with a program in community health education desired. North Eastern U. S. preferred. Write **Box HE-9,** Employment Service, A.P.H.A.

Laboratory Technician—Graduate class 1949 (Feb.), B.S. Biology; 6 years' ex-

perience in medical and sanitary laboratory work; age 32; married; desires position in public health work. Write: **Box L-6,** Employment Service, A.P.H.A.

Public Health Physician, 39, M.D., M.P.H. from leading universities, considerable experience in local health administration and teaching in outstanding medical school and important public health responsibilities in the Army. Will consider desirable opening at salary consistent with background. Write: **Box Ph-11,** Employment Service, A.P.H.A.

Health Educator, female, 45, single, M.P.H. Considerable and responsible experience in local and national agencies and as executive secretary of health councils. Some teaching and editorial experience. Seeks challenging opportunity in a responsible position in official or voluntary health agency. Write **Box HE-10,** Employment Service, A.P.H.A.

Announcements

The U. S. Civil Service Commission announces an examination for Public Health Nurse, for positions in the U. S. Public Health Service and the Indian Service, throughout the country and in the Territories and possessions. Salaries range from $3,727 to $4,479 a year.

Applicants will be rated on the basis of education and experience. Requirements: a 3 year nursing course *or* a 2 year nursing course, plus appropriate nursing experience or education. Included in or supplementary to this education, applicants must show a minimum of 30 semester hours in an approved program of study in public health nursing and a minimum of one year's experience in public health nursing in a generalized community public health program. For positions paying $4,479, additional experience in staff nursing or supervisory experience is required. Current registration as professional nurses in a State, Territory, or the District of Columbia, at the time of appointment is required.

Maximum age limit for positions paying $3,727 in the Indian Service is 40 years; for all other positions to be filled, 62 years. Age limits are waived for persons entitled to veteran preference. Write: U. S. Civil Service Commission, Washington, D. C., or Civil Service regional offices. Closing date for applications is March 29, 1949.

Competitive examinations for appointment of Engineer Officers in the Regular Corps of the U. S. Public Health Service will be held on April 11, 12, and 13, 1949. Appointments will be made in the following grades:

1. Junior Assistant Sanitary Engineer (Second Lieutenant), entrance pay with dependents, $3,391.
2. Assistant Sanitary Engineer (First Lieutenant), $3,811.
3. Senior Assistant Sanitary Engineer (Captain), $4,489.

All grades are required to be U. S. citizens with a degree in one of the several branches of engineering from a school of recognized standing. (Undergraduate engineering students in the senior year are eligible to take the examination.) Additional requirements:

Assistant Grade:

Seven years of educational and professional training or experience subsequent to high school (including two years professional training or experience in a field of public health or related field).

Senior Assistant Grade:

Ten years of educational and professional training or experience after high school (including four years of professional training and experience in public health or related field).

Duty assignments include: sanitary engineering, water pollution control, industrial hygiene, malaria and typhus control, milk and food sanitation, and environmental health research activities.

Apply before March 18 to Surgeon General, U. S. Public Health Service, Washington 25, D. C., Division of Commissioned Officers.

New Continuous Examination Plan in New York State

Applications for oral examinations open to residents and non-residents of New York State are being continuously accepted for: Assistant District Health Officer and Senior Public Health Physician (Tuberculosis Control), beginning salary $6,154 with annual increments to $6,910; District Health Officer, $6,700 to $8,143; and Associate Public Health Physician (Tuberculosis

Control) and Associate Public Health Physician (Venereal Disease Control), $7,279 to $8,143.

Because of rapidly expanding programs and because there are more than twenty vacancies in higher paying positions in the state and local health departments, the opportunities for promotion will be unusually good after six months to one year of service. Other advantages are a month's vacation annually, liberal sick leave, and participation in the state retirement plan.

Qualifications for all positions include citizenship; graduation from an approved medical school; license or eligibility for license to practise medicine in New York State; one year's satisfactory internship or equivalent; successful completion of a postgraduate course in public health of one academic year in residence, approved by the New York State Public Health Council; and at least six months' satisfactory, full-time experience in a responsible public health position. Experience may be substituted for the postgraduate course in public health. Additional specialized experience is required for positions other than Assistant District Health Officer. Write: State Department of Health, Albany 1, N. Y., for details.

Fellowships Available in New York State Department of Health

Dr. Herman E. Hilleboe, New York State Commissioner of Health, announces the availability of Fellowships to train physicians to qualify for public health positions in New York State.

The Fellowship carries a stipend of $3,600 per year and is for one year or more, depending upon the training required. The content of the training is varied in accordance with the position for which the physician is being prepared. The types of training may be roughly grouped in four categories: Health Officer, TB Physician, Clinical Consultant, and Laboratory Director.

Further information and application forms may be obtained by writing to: Dr. Franklyn B. Amos, Director of the Office of Professional Training, New York State Health Department, Governor Alfred E. Smith State Office Building, Albany 1, N. Y.

Vacancies in New York City

The New York City Department of Health has six vacancies in the title of District Health Officer at the salary of $7,150 per annum. This position involves administrative responsibility for all activities of the Department of Health in a district with a population of approximately 250,000. Candidates must have an M.D. degree and one year of approved internship. In addition, they must have an M.P.H. degree and three years of experience as a health officer or assistant health officer or in another administrative public health position, or a satisfactory equivalent of this education and experience. Local legislation requires three years of residence in New York City immediately prior to appointment. This requirement will probably be waived in the case of outstanding applicants. Interested applicants are to write to the Bureau of Personnel of the New York City Dept. of Health, 125 Worth Street, New York 13, N. Y.

Opportunities in West Virginia, March, 1949

The following positions are now open in West Virginia:

Nutritionist I	$2,760–3,240
Nutritionist II	$2,520–3,000
Dental Clinician	$3,600–4,800
Dental Hygienist I	$2,400–2,880
Dental Hygienist II	$2,040–2,520

For further information write to: Mr. Paul B. Shanks, Administrative Assistant, State of West Virginia, Department of Health, Charleston 5, W. Va.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—(a) Medical director; health service of national organization; public health physician with administrative experience required; $9,000. (b) Student health physician to serve as medical consultant; one of country's largest universities; $7,500-$8,000. (c) Public health physician, experienced in directing public health program and in teaching, to join faculty, department of public health, medical school in South America, command of Spanish required. (d) County health officer; Pacific Northwest; $7,200 plus ample traveling allowance. (e) Woman physician to direct student health program on woman's campus; state university; fall appointment. (f) Director; city-county health department; staff of fourteen; town of 45,000; Middle West. (g) Public health physicians for administrative positions; city and county health departments; $8,000-$10,000; East. (h) Physician to direct health and physical education; public schools, enrollments, 16,000; faculty 6,000; well staffed department; town of 75,000; Middle West. **PH3-1** Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Coördinator of training; preferably candidate with Master's degree in public health and four-five years' experience; $5,000. (b) Associate nutrition consultant; department of health; outside Continental United States; $4,800-$6,000. (c) Sanitary chemist; research appointment in field of environmental sanitation; outside Continental United States. (d) Sanitary engineers, public health engineers, and specialists in fields of malaria and insect control; positions of considerable responsibility; South America. (e) Public health nurse to serve as health educator; collegiate school; duties include teaching hygiene; university medical center; West. **PH3-2** Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Public health supervisor to conduct generalized nursing program including school health services; city health department, Middle West; $4,500-$5,000. (b) Chief nurse; new blood center; public health training required; blood bank or operating room experience desirable; duties consist of responsibility of blood program nursing activities; including mobile units; West. (c) Supervisor; newly organized visiting nurse service; independent agency; challenging opportunity; vicinity New York City. (d) Public health nurse to direct out-patient department; university hospital, 400 beds; $3,600 increasing to $6,000. (e) Staff nurses; generalized program; interesting location, California, $245-$315, according to experience. **PH3-3** Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Advertisement

Opportunities Wanted

Public health administrator; B.A., M.S., M.D., eastern schools; Master of Public Health, Johns Hopkins; several years director of public health program in foreign country; eight years, professor of preventive medicine and public health, university school of medicine; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health dentist; Master's degree in public health; experience includes considerable research on problems of dental caries; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Sanitary engineer; Bachelor's degree; since 1940, department of public sanitation, municipal health department serving as chief chemist and director; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Sanitary chemist; B.S. (Major: Entomology); graduate training in bacteriology, biochemistry; five years, sanitary chemist, metropolitan health department; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Health educator; M.S. (Major: Public Health; Minor: Health Education); four years, sanitarian, county health department; past several years, director of health education, county health department; in early thirties; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health nurse is available for executive position; B.S. in Public Health Nursing; M.A. in Administration; Ed.D. Nursing Education; seven years, teaching her specialty; four years, public health nursing administration; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

THE WORLD'S CHILDREN STILL NEED HELP

It will be remembered that the United Nations' Appeal for Children of 1948 had a goal of $60,000,000 to be raised in the United States. Although eminently successful in South Africa, Australia, New Zealand, Newfoundland, Canada, Iceland and the Scandinavian countries, the appeal failed lamentably in the United States, not more than half a million dollars having been raised for this country through private subscriptions for the United Nations International Children's Emergency Fund.

This Fund now announces that there is still opportunity for the people of the United States to share in the program by sending contributions directly to the Children's Emergency Fund, which is part of the United Nations.

Children's programs are being carried on in 13 European countries, China, 8 or 9 other countries in the Far East, and in Mexico. In Europe the program has up to the present been largely a feeding program but, with the abatement of the food crisis, is becoming more and more a medical program with chief emphasis upon tuberculosis control. In the Far East and Mexico, the program has been entirely medical, largely in the field of malaria and tuberculosis control.

Martha M. Eliot, M.D. traveled extensively in Europe in 1947 and 1948 as Chief Technical Consultant to the Children's Emergency Fund and still serves it in a consultant capacity. Henry F. Helmholz, M.D., of the Mayo Clinic has recently returned from Europe after a year's service as Chief Medical Consultant to the Fund.

Contributions to the child saving work of the Fund may be sent to the United Nations International Children's Emergency Fund, 405 E. 42nd St., New York.

DENTAL HEALTH BUREAU IN NEW YORK STATE

The New York State Department of Health recently moved to meet the increasing responsibilities of its expanded dental health program by giving its dental health section the status of a department bureau. The new program calls for intensification of the control of dental decay by all known methods. Special emphasis is being placed on the use of sodium fluoride on the teeth of children of school age or younger. The program also calls for more intensive postgraduate education for dentists in the diagnosis of cancer of the mouth since at least 10 per cent of all malignant cancers are found in and around the mouth, according to Herman E. Hilleboe, M.D., State Health Commissioner.

Other elements in the program are the correction of seriously crooked teeth and malformed jaws in children, especially when the defects are considered a handicap to the growth and development of the child, preventive orthodontics, and industrial dental hygiene.

David B. Ast, D.D.S., who has been director of the dental health section, Bureau of Maternal and Child Health, will head the new bureau.

66 HEALTH CENTERS APPROVED

By the end of October, 1948, a total of 540 project applications for federal grants under the Hospital Construction Act had been approved by the Surgeon General. More than 10 per cent of these, 66 in number, were health centers and 3 were health department laboratories.

ROBERT GOULD RESEARCH FOUNDATION GRANT TO JOHNS HOPKINS

Dr. Detlev W. Bronk, newly installed President of Johns Hopkins University, Baltimore, has announced that the Robert Gould Research Foundation, Cincinnati, has made a grant of $5,000 for research in 1949 by Professor E. V. McCollum, Professor Emeritus of Biochemistry at the School of Hygiene and Public Health. The grant is intended to assist Dr. McCollum to continue his experiments in the chemistry of nutrition, particularly the separation in pure form of amino acids.

The Robert Gould Research Foundation is devoted primarily to the advancement of the science of nutrition. Other recipients of grants-in-aid from the Foundation are Cornell University, Ohio State University, University of Toronto, the University of Wisconsin, the National Research Council and the University of Cincinnati to which the Foundation has given a comprehensive library on nutrition.

HERMANN M. BIGGS MEMORIAL LECTURE

Howard A. Rusk, M.D., professor and chairman, department of rehabilitation and physical medicine, New York University College of Medicine, and Associate Editor, *The New York Times*, will deliver the annual Hermann M. Biggs Memorial Lecture of The New York Academy of Medicine at the Academy's Hosack Hall on April 7, 8:30 P. M. The subject of the lecture will be "The Medical, Social, and Public Health Aspects of Rehabilitation," and is open to the general public.

DR. JOHN WHITNEY LEAVES NEW ORLEANS FOR AMERICAN RED CROSS

The resignation of John M. Whitney, M.D., as City Health Superintendent of New Orleans, effective February 1, was recently announced. Dr. Whitney is a graduate of the Tulane University Medical School and was appointed Superintendent of Health in March, 1941. According to the announcement, his new position will be that of Medical Director for the Eastern Division of the American National Red Cross.

Dr. Whitney served for some years as Secretary of the Southern Branch, American Public Health Association, and the 1948 meeting of the Branch was held under very favorable auspices in New Orleans.

WISCONSIN PUBLIC HEALTH CONFERENCE

The Wisconsin Public Health Conference of December 20 and 21, arranged by the State Public Health Council and sponsored jointly with the State Board of Health, the Wisconsin Public Health Association, and the University of Wisconsin, addressed itself to making the state's citizens community public health conscious. The first day was devoted to the problem of local health units, their development through local health councils, their functions, and their administrative organization. These subjects were dealt with by a panel made up of Drs. John W. Ferree, Roscoe P. Kandle, Vlado A. Getting, and Haven Emerson.

The second day was devoted to the more detailed discussion of specialized activities of a local health department—sanitation, laboratory, mental hygiene, public health nursing, dentistry, and hospital and health department coördination—with a panel of six including Ellis S. Tisdale, Margaret Taylor, and Drs. G. D. Cummings, Frederick S. McKay, Paul H. Stevenson, and Basil McLean.

The Wisconsin Public Health Association was fully organized at this meeting with a constitution and by-laws designed to make it eligible for affiliation with the A.P.H.A.

PUBLIC HEALTH PRACTICES INSTITUTE FOR VETERINARIANS

To give the veterinarian better understanding of public health objectives and

practices, the Illinois Department of Public Health is sponsoring an Institute on Public Health Practices for Veterinarians to be held in Springfield, Ill., March 21–March 23, 1949, to which all veterinarians are invited. The program has been designed better to acquaint veterinarians with the three basic public health practices, namely, epidemiology (disease reporting), public health education, and disease prevention and control. Participants in the program have been selected from both veterinary and public health fields upon a basis of their experience and qualifications in these fields.

Though not specifically stated, this Institute is presumably open without fees to veterinarians both in Illinois and outside the state. Hotel accommodations are being handled by the Secretary of the Convention Department, Springfield Chamber of Commerce, Springfield, Ill.

NORTH CAROLINA SUMMER INSTITUTE OF STATISTICS

The Institute of Statistics of the University of North Carolina announces a summer session, June 9–July 19, 1949, at Chapel Hill. Intensive instruction will be offered for the benefit of:

1. Research scholars in other sciences who want a practical working knowledge of statistical theory
2. Statistical consultants in various fields
3. Those preparing to teach statistics or to develop statistical theory
4. Students working toward a degree in applied or theoretical statistics

Several applied courses will deal with statistical analysis and designs for research work in medicine, public health, and nutrition.

Among the staff are the following:

G. W. Snedecor, Director of the Statistical Laboratory, Iowa State College and author of the textbook, *Statistical Methods*

D. J. Finney, lecturer in the design and analysis of scientific experiment, University of Oxford, England

J. Wolfowitz, Associate Professor, Department of Mathematical Statistics, Columbia University

R. C. Bose, recently professor, Calcutta University, India

Futher information from Gertrude M. Cox, Director, Institute of Statistics, the University of North Carolina, Box 168, Chapel Hill, N. C.

RICHLAND COUNTY HEALTH NEWS

December, 1948, saw the first issue of *Your Health*, sired jointly by the Mansfield-Richland County (Ohio) Health Department, the County Tuberculosis Association, and the Mansfield unit of the American Cancer Society. Starting with the maxim "Health begins with education," its aim is to make general knowledge in its community of 75,000 what is at present known about health to only a few, and thus increase the average expectation of life about ten years. Richland County Health Department, Mansfield, Ohio.

PHILADELPHIA HEALTH SURVEY

A city-wide health survey of Philadelphia is being conducted by the Health and Welfare Council under the general supervision of an executive committee appointed by the Council, the City Planning Commission, and the Philadelphia Department of Public Health. The survey will be made jointly by Roscoe P. Kandle, M.D., and Carl E. Buck, Dr.P.H., Field Director and former Field Director respectively, of the American Public Health Association. Among other uses the study will serve as a basis for planning the health center administration of the city health department.

DR. DONALD DUKELOW APPOINTED A.M.A. BUREAU CONSULTANT

The appointment of Donald A. Dukelow, M.D., of Minneapolis as Medical Consultant in Health and Fitness of the American Medical Association Bureau of Health Education, Chicago, was re-

cently announced. Dr. Dukelow has been Director of the Committee on Medical Care of the Community Chest and Council of Hennepin County, Minnesota. He is the Secretary of the Health Education Section of the A.P.H.A. The appointment will become effective March 1.

HEALTH INSURANCE BILLS INTRODUCED INTO 81ST CONGRESS

Bills identical with S 1320—the Murray-Wagner-Dingell bill for compulsory health insurance of the 80th Congress—were introduced into both House and Senate in the opening days of the 81st Congress. The Senate bill, introduced by Senators Murray, Wagner, and McGrath is numbered S 5. The House bills, HR 345 and HR 783, were introduced respectively by Representative Celler and referred to the House Ways and Means Committee, and by Representative Dingell and referred to the Committee on Interstate and Foreign Commerce.

FILM CATALOG-UTILIZATION GUIDE

The Communicable Disease Center, U. S. Public Health Service, Atlanta, Ga., has prepared a looseleaf guide describing the films and film strips that have been prepared by the Service. The *Guide* is divided into sections, depending upon the subject matter. Each film or film strip is described on a separate sheet, with blank space for the user to make comments concerning its applicability and value. It is not anticipated that everyone using films would have need for the entire *Guide*. On the contrary, it is anticipated that each person will request the portion of the *Guide* of particular interest to him. The *Guide* is classified in the following headings: Anatomy and Physiology, Entomology, Hospitals, Insect Vector Control, Laboratory Techniques, Parasitology, Quarantine, Rat Borne Disease Control, Sanitation and Sanitary Engineering, Tropical Diseases and Infectious Diseases, Venereal Disease Control, Veterinary Medicine and Activities, and Visual-Aids Techniques.

LIFSON TO HEART ASSOCIATION

Sol S. Lifson is the latest addition to the staff of the American Heart Association in its program of expanding service and developing local heart associations. As supervisor of field services of the public health division, he will be responsible for the program development and community organization field services of the association.

In this capacity he will be working in the same relationship to John W. Ferree, M.D., the director of the division, that he has occupied for the last year and a half in the National Health Council. Both men were formerly on the staff of the Council, Dr. Ferree having gone to the heart association on January 15, Mr. Lifson on March 1.

Before coming to the National Health Council, Mr. Lifson was for four years health education consultant in the U. S. Public Health Service, and has had health education teaching experience in the Massachusetts Institute of Technology, New York University, and Yale University where he is currently lecturer in public health with the rank of assistant professor. He is Secretary of the School Health Section of the American Public Health Association and member of the executive committee, National Publicity Council.

AMA'S PR DOCTOR

In August, 1948, the American Medical Association issued the first of its "The PR Doctor Series." This is a bi-monthly four-page public relations news letter designed "to encourage the development and conducting of public relations projects by state societies, and their coöperation toward common public relations goals." As such it gives a round-up of current trends, activities,

and opinion on medical public relations topics.

PR Doctor is distributed to trustees, officers, and members of the House of Delegates of A.M.A. and to officers, journal editors, and public relations committees of state societies. It is prepared in the office of the executive assistant for coördination and public relations, Lawrence W. Rember, 535 N. Dearborn St., Chicago 10.

DR. KOGEL, NEW YORK CITY HOSPITAL COMMISSIONER

On February 1, Marcus D. Kogel, M.D., became New York City Commissioner of Hospitals, succeeding Edward D. Bernecker, M.D., resigned. As such, he will have charge of the city's 28 municipal hospitals with a total bed capacity of more than 20,000, and a patient census of three per cent above capacity on the day he took office. The annual departmental budget is nearly $70 million.

Except for two periods of service in the Army Medical Corps, Dr. Kogel has been in the Department of Hospitals since it became a separate department exactly 20 years before he took office as Commissioner. He started as Deputy Medical Superintendent of Cumberland Hospital, then became Medical Superintendent of Queens General Hospital, and for the past two years has been General Medical Superintendent of the Hospital Department. During the recent war he was chief of preventive medicine of the China Theater and was awarded the Legion of Merit for his services while in that assignment. He is a Fellow of the American Public Health Association.

Among the new projects announced for the department by Commissioner Kogel are: the extension of home care service to relieve the shortage of hospital beds, reorganization of clinic services, breaking the "bottleneck" of x-ray and laboratory services which now contributes to bed shortages, and an experimental program to relieve the nurse shortage.

SAFE DISPOSAL OF RADIOACTIVE WASTES

In January the Atomic Energy Commission sponsored a two day seminar in Washington, D. C., on disposal of radioactive wastes, to which were invited water works and sanitary engineers, both from private industry and from state and federal government departments. In addition to scientists from the federal atomic energy projects, Abel Wolman, Dr. Eng., head of sanitary engineering at Johns Hopkins University, was among the speakers. The conclusions in part are: "So far as external ionizing radiation is concerned, there is no hazard with proper methods of disposal. From the standpoint of internal radiation, to the best of our knowledge, the precautions we are utilizing are giving adequate protection."

FOOD INSPECTORS' AND SANITARIANS' SHORT COURSE

The 6th annual Dairy and Food Inspectors' and Sanitarians' School will be held at Michigan State College on April 4–7 for the busy worker in these fields to secure the latest information on many aspects of food inspection with a minimum of time and expense. Details of the school and a copy of the program may be obtained from Dr. W. L. Mallmann, Department of Bacteriology and Public Health, Michigan State College, East Lansing.

DR. RINGLE RESIGNS AS STATE HEALTH OFFICER

Arthur M. Ringle, M.D., resigned as Director of the Washington State Department of Health as of December 1 to assume a medical administrative post with the Branch office of the Veterans' Administration in Seattle.

Dr. Ringle has served as Director since January 22, 1945, having formerly

been Health Officer of the Walla Walla-Benton-Franklin District.

During Dr. Ringle's administration four new programs were added to the State Department's work, including cancer control, mental hygiene, hospital planning, and conservation of hearing. Dr. Ringle is the President-Elect of the Western Branch A.P.H.A., and special consultant to the Mental Hygiene Division, U. S. Public Health Service.

The administrative duties of the department have been assumed temporarily by J. A. Kahl, M.D., Assistant Director, until a successor is appointed.

BILLS IN HOUSE FOR WELFARE CABINET POST

Representatives Harris and Dawson have introduced into the 81st Congress HR 184 and HR 782, providing for departmental status and thus cabinet rank for its administrator for the Federal Security Agency. The bills will be considered by the House Executive Expenditures Committee of which Congressman Dawson is chairman.

ROYAL SANITARY INSTITUTE MEETING TO BE HELD IN BRIGHTON

It has been announced from England that the meeting of the Royal Sanitary Institute will be held in Brighton, May 23–27.

It is requested that Fellows and members of the American Public Health Association who expect to be in Great Britain during May will communicate with the Executive Secretary.

WASHINGTON LOCAL HEALTH OFFICERS RECOMMEND LEGISLATION

The Washington State Local Health Officers Association at its annual meeting late in 1948 recommended the following measures for consideration by the state legislature:

1. Reorganization of the State Board of Health to have legal authority for all state-wide public health measures and to consist of 9 members appointed for 6 year terms by the Governor with Senate approval. One would come from each Congressional district, plus 3 members at large. The board now has 5 members, appointed and serving at the pleasure of the governor.

The new board would be empowered to select the State Director of Health for a 6 year term. At present he is appointed by and serves at the pleasure of the governor. Under the proposed legislation, he must be a qualified physician with postgraduate training in public health and 5 years' experience in public health administration. His salary would be fixed by the Board. At present a physician is specified, but no public health experience is required.

2. Legislation enabling cities of more than 100,000 population to combine into city-county health departments.

3. The health officers ask that the 3 cents per capita now contributed by the state to local full-time health departments be raised to 30 cents, and that a total of $625,000 a year be made available for subsidy to full- and part-time health departments.

1949 OFFICERS OF MUNICIPAL PUBLIC HEALTH ENGINEERS

At the recent meeting of the Conference of Municipal Public Health Engineers in Boston, at the time of the A.P.H.A. annual meeting, the following officers and Executive Committee were elected:

Chairman—Morton Hilbert
Vice Chairman—Herbert Dunsmore
Secretary-Treasurer—Arthur H. Herberger
Executive Committee—
William H. Cary—1949
William J. Dixon—1949
William R. Hardy—1950
Henry D. Peters—1950
Joel C. Beall— 1951
Charles L. Senn—1951

The Conference adopted a resolution recognizing the value of the Engineering Section Project of A.P.H.A. and requesting the Executive Board to continue it.

RUSSIA INDICATES WITHDRAWAL FROM WHO

It was announced in Geneva on February 16 by the World Health Organization that the Soviet Union, together with the Ukraine and Byelorussia, have notified WHO that they no longer consider themselves members of WHO.

According to Dr. Brock Chisholm, Director General of WHO, the withdrawal of the Soviet Union from the only specialized agency of the United Nations to which it belonged came without warning. The Soviet Union's reason was given as failure of WHO to carry out the tasks set forth by the World Health Conference of 1946. Moscow was quoted as saying "The tasks connected with international measures for the prevention and control of diseases and with the spread of the achievements of medical science are not being accomplished." Also "At the same time, maintenance of the organization's swollen administrative machinery involves expenses which are too heavy for member states to bear."

Dr. Chisholm pointed out in his reply that the constitution of the organization contains no provision for the withdrawal or the expelling of a member. The United Nations had decided that membership in WHO should be permanent and unretractable. He urged that other governments attempt to persuade Russia to reconsider inasmuch as the organization had been in full operation only four and a half months. The organization is short of money and is newly acquiring staff. It was stated that the Soviet Union, the Ukraine and Byelorussia have made no payment on their contributions which total to date $350,000. Dr. Chisholm said that WHO had repeatedly asked the Soviet Union for experts to act on its technical committees and it was said by a WHO spokesman that Russia had worked side by side with other members of WHO in trying to halt the outbreak of cholera in Egypt, the increase of tuberculosis in Central Europe, and malaria epidemics in Greece, Yugoslavia, and other countries.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH NOW IN OPERATION

Readers of the *American Journal of Public Health* have been advised of the incorporation of the American Board of Preventive Medicine and Public Health on June 29, 1948, and the organization of the Board of Trustees of the corporation with representatives from the American Medical Association, the American Public Health Association, the Canadian Public Health Association, the Association of Schools of Public Health, and the Southern Medical Association.

According to an announcement by Ernest L. Stebbins, M.D., of Baltimore, Secretary of the Board, the applications of the American Board of Preventive Medicine and Public Health, Inc., for approval by the Advisory Council on Medical Specialties and by the Council on Medical Education and Hospitals of the American Medical Association were approved in early February. Dr. Stebbins has indicated that the Board is now officially in operation and that it is prepared to receive applications from physicians wishing to have their specialty qualifications in preventive medicine and public health certified. Correspondence should be directed to Dr. Stebbins at 615 N. Wolfe Street, Baltimore, Md.

In addition to the Trustees of the Board whose names have already been published (*A.J.P.H.*, Vol. 38, No. 9, September 1948, page 1348; November 1948, page 1619), three newly elected Trustees at large attended the meeting held in Chicago in February. These included:

Gaylord W. Anderson, M.D., Minneapolis, Minn., M. R. Kinde, M.D., Battle Creek, Mich., and Emil Palmquist, M.D., Seattle, Wash.

As already announced, it is anticipated that the Interim Board on Preventive Medicine and Public Health, which was created by the Surgeons General of the U. S. Public Health Service, U. S. Air Corps, U. S. Army, and U. S. Navy, for the certification of medical specialists in public health and preventive medicine from the Government Services, will be terminated in view of the organization of the American Board of Preventive Medicine and Public Health, Inc. In view of the approval of the latter by the action already noted it was expected that 315 applications for certification from the Services which are now in the hands of the Interim Board would be transferred to the American Board of Preventive Medicine and Public Health for review.

It is anticipated that the new Specialty Board will hold its first examination in Washington, D. C., on May 15 and 16, 1949, and that the next examinations will be held in New York City preceding the 77th Annual Meeting of the American Public Health Association on October 22 and 23. Applications are said to close 60 days before the announced dates.

The *American Journal of Public Health* will carry in a forthcoming issue a digest of the conditions to be met by those who are certified by the Board.

DR. ROSEN DIRECTOR OF BUREAU

George Rosen, M.D., Ph.D., has been named director of the Bureau of Health Education of the New York City Health Department, succeeding Israel Weinstein, M.D., now on terminal leave. Except for a three year period on military leave, Dr. Rosen has been with the department since 1941, first as clinic physician in the Bureau of Tuberculosis and, since 1946, as district health officer. He edits a column "Public Health in Foreign Periodicals" in the *American Journal of Public Health* and is a member of the Editorial Board.

NEW HAMPSHIRE MEDICAL SOCIETY APPROVES STATE PROVIDED LOCAL HEALTH SERVICES

A constant reader and contributor sends the following to News from the Field, taken from the Proceedings of House of Delegates, New Hampshire Medical Society, June, 1948, reported in the *New England Journal of Medicine:*

State legislative support for more adequate local health services in New Hampshire will be sought by the state medical society, according to action taken by the House of Delegates in June, 1948, on a report of its Committee on Public Health. The report pointed out that local services could best be provided by a series of district offices staffed by full-time workers from the State Department of Health. A demonstration in Exeter for the past six years proved the value of regionalization of state services. Development of direct services from local units or from county units was deemed undesirable because of financial and personnel shortages for a multiplicity of small part-time units. The new dental program of the state health department was cited as a successful device for bringing specialized services to the public.

DR. MELENEY TO STUDY PUBLIC HEALTH IN NEAR EAST

Henry E. Meleney, M.D., Hermann M. Biggs Professor of Preventive Medicine, New York University-Bellevue Medical Center, New York City, left New York on February 8 for Beirut, Lebanon, where during a six months sabbatical leave he will make a study of public health teaching needs at the American University.

Dr. Meleney's study under a grant from the Commonwealth Fund will form the basis of a future program to meet the needs for the development of public health personnel to promote and maintain the health of industrial populations as well as for general improvement in public health.

BIBLIOGRAPHY ON PLUMBING AND PUBLIC HEALTH

The U. S. Public Health Service has recently made available a revised bibli-

ography on "Plumbing and Public Health." It includes items up to July 1, 1948, and replaces the previous bibliography published in 1940. Five hundred thirty-one references are contained in the bibliography. Copies may be obtained from the U. S. Public Health Service, Division of Sanitation, Washington, D. C.

CORRECTION

The January, 1949, issue of the *American Journal of Public Health*, page 6, among the High Points of the Boston meeting, quotes Mr. J. J. Bloomfield on Shaver's Disease, which it states was first reported in Kansas by Dr. Shaver.

Through a stenotypist's error this should have indicated that Dr. Shaver first reported the disease in Canada.

PERSONALS

DEWITT S. ABELL † is now associate chief of party and chief engineer, health and sanitation division, Institute of Inter-American Affairs, after serving as chief sanitary engineer, UNRRA in China. He can be addressed c/o American Embassy, Montevideo, Uruguay.

LOUISE AGNEW, R.N., was named to the Lawton-Comanche County (Oklahoma) Health Department, early in December. KENNETH C. KIDD, was appointed Sanitarian of the same county.

F. KENNETH ALBRECHT, M.D.,† formerly of the U. S. Public Health Service and more recently medical editor for The Williams & Wilkins Company, Baltimore, Md., has been appointed Director of the Division of Tuberculosis Control, Kansas State Department of Health.

EDWARD M. BERNECKER, M.D., has resigned as New York City Commissioner of Hospitals to become Administrator of Hospital Services for the New York University-Bellevue Medical Center. In the City Hospital Department since 1920, Dr. Bernecker had been Hospital Commissioner since 1942.

CARROLL S. BRINSFIELD has been appointed Maryland State Food and Drug Commissioner, to succeed the late A. L. SULLIVAN.

ROWLAND BURNSTAN, who has served for 2 years as Executive Director of the New York State Charities Aid Association, New York City, has resigned to enter private business.

HELEN CANNON † has been appointed director of the section on Social Services of the Preventive Medicine Division of the Colorado State Department of Public Health. This section has been developed to provide generalized social service consultants to the several geographical areas of the state.

ALTA ELIZABETH DINES * retired on December 31 as Director of the Department of Educational Nursing of the Community Service Society of New York after serving the agency for 25 years. She is a member of the nursing scholarship committee of the National Organization for Public Health Nursing and of the Isabel Hampton Robb Memorial Fund which provides scholarships for nurses for advanced study, and is 1st vice-president of the Harmon Association for the Advancement of Nursing.

VIVIAN V. DRENCKHAHN, M.P.H.,* has been appointed Director of the Health Education Service of the National Tuberculosis Association, New York, on which staff she has served for 3 years.

DAVID R. L. DUNCAN, M.D.,† formerly a school physician of the Denver public schools, began his duties as Health Officer for the Las Animas-Huerfano (Colorado) Health Department on January 1.

GEOFFREY EDSALL, M.D.,* Director of the Division of Biologic Laboratories of the Massachusetts State Depart-

ment of Health, has taken over the editorship of the Journal of Immunology, the only such technical publication specializing in this field in the English language.

PROFESSOR GORDON M. FAIR,* Dean of the Graduate School of Engineering and Gordon McKay Professor of Sanitary Engineering at Harvard University, has been appointed Master of Dunster House, Cambridge, Mass., where he has taken up residence with the 371 students and 12 staff members.

GEORGE E. FARRAR, JR., M.D., Associate Professor of Medicine at Temple University, Philadelphia, Pa., has been appointed Medical Director for Wyeth, Inc., in the same city, to advise the management on medical affairs. He will continue his post at Temple University as co-author of the U. S. Dispensatory.

LLOYD J. FLORIO, M.D., Dr.P.H.,* has been promoted to Professor and Head of the Department of Preventive Medicine and Public Health, recently established at the University of Colorado Medical School, Denver. Dr. Florio has recently been on loan to the Denver Department of Health as Health Officer, pending the appointment of JAMES P. DIXON, JR., M.D.†

LUKE W. FRAME, M.D., Director, Bureau of Communicable Disease Control, West Virginia State Health Department resigned November 30 to assume directorship of the newly created Huntington-Cabell Health Department.

LLOYD H. GASTON, M.D., Dr.P.H.,† has been appointed Director of St. Luke's Hospital, New York City, effective January 1. He has been Acting Director since the retirement on July 1, because of ill health, of CLAUDE W. MUNGER, M.D.

AGNES E. GERDING, R.N.,† who has served as Executive Secretary of the Suffolk County Tuberculosis and Health Association, Long Island, N. Y., has resigned to become an Associate in Program Development for the National Tuberculosis Association, New York City.

LOWELL S. GOIN, M.D.,* of Los Angeles and J. ELLIOTT SCARBOROUGH, JR., M.D., of Atlanta were recently appointed to the National Advisory Cancer Council by LEONARD A. SCHEELE,* Surgeon General of the U. S. Public Health Service.

MANUEL GONZALEZ-RIVERA, M.D.,† who has been working in the Institute of Public Health and Tropical Diseases and in the School of Public Health, Mexico City, has been appointed Director of the National Health Museum, Mexico City.

WILLIAM S. GROOM,† for 8 years President of the Public Health Federation of Cincinnati and for the past 4 years its volunteer Director of Health Education, has received the Award of Honor for 1948 for distinguished service to the cause of public health in Greater Cincinnati.

KENNETH W. HAWORTH, M.D.,† formerly Health Officer of the Humboldt County Health Department, has become the first full-time Health Officer of Napa County, California.

MURIEL CROTHERS HENRY, has been appointed to handle public relations for the Committee on Careers in Nursing, sponsored by the six national nursing organizations. Mrs. Henry was most recently Director of Public Relations for the Chicago Travelers Aid Society.

R. L. HOWELL has been named Sanitarian for District 1 Health Department, made up of 5 Oklahoma Counties with headquarters in Wagoner.

CECIL G. HUPP, M.D., has succeeded W. B. JOHNSON, M.D.,* as Maryland Deputy State Health Officer in Caroline County.

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* Fellow A.P.H.A.
† Member A.P.H.A.

WILLIAM H. IRELAND has been appointed Executive Secretary of the Council of Social Agencies, Akron, Ohio. Since 1946 he has been head of neighborhood services of the council.

NORMAN JOLLIFFE, M.D.,* has been appointed head of the New York City Department of Health's newly organized Bureau of Nutrition under a plan to open five additional clinics throughout the city in 1949.

HILDA H. KROEGER, M.D.,* Director of Maternal and Child Health, Arizona State Department of Health (Phoenix), has been appointed Assistant Director of Grace-New Haven Community Hospital, Conn., and Professor of Hospital Administration at Yale University.

CHARLES MACNAMARA has been named Executive Secretary of the Lake County (Illinois) Tuberculosis Association, succeeding ORPHA WHITE, deceased.

HARRIETTE M. MALONE has joined the staff of the Social Hygiene Committee, New York Tuberculosis and Health Association.

D. FRANK MILAM, M.D.,* for the past 25 years a member of the Field Medical Staff of the International Health Division of the Rockefeller Foundation, has been named National Director of the Planned Parenthood Federation of America with headquarters in New York.

ALBERTA M. MORGAN, R.N.,† is the new Nursing Consultant in Maternal and Child Health of the Public Health Nursing Division, Arizona State Health Department, Phoenix.

JAKE MILLER, KEITH HANGER and R. S. JACOBSON have recently completed training as sanitarians at the West Virginia Public Health Training Center, Morgantown, W. Va. Messrs. Miller and Hanger have now been assigned to Kanawha County and Mr. Jacobson has been assigned to District No. 1, with an office at Summersville.

RUSTIN MCINTOSH, M.D., Carpentier Professor of Pediatrics, College of Physicians and Surgeons of Columbia University and Director of the Pediatric Service, Presbyterian Hospital, New York, has been elected 1949 Chairman of the American Council on Rheumatic Fever of the American Heart Association, succeeding H. M. MARVIN, M.D. LAWRENCE LINCK,† Executive Secretary of the National Society for Crippled Children and Adults, was elected Vice Chairman.

JOHN W. R. NORTON, M.D.,* Raleigh, N. C., State Health Officer, received the first Reynolds Medal and scroll at the October, 1948, meeting of the North Carolina Public Health Association in Durham. Given in honor of former State Health Officer, CAROL V. REYNOLDS, M.D.,* the medal is awarded to the association member who presents the most outstanding address or paper at the convention.

SIR JOHN BOYD ORR, M.D.* former head of the United Nations Food and Agricultural Organization, was made a Baron according to the New Year Honors List published on behalf of King George VI of Great Britain. Sir John is an Honorary Fellow of the A.P.H.A.

SAMUEL B. OSGOOD, M.D.,* is now epidemiologist and director of the venereal disease control section of the Oregon State Board of Health (Portland). He has served as Josephine County Health Officer for the past 12 years.

W. PHILLIPS PALMER,† Consultant in Hospitals and Medical Care, West Virginia State Health Department, resigned on November 15 to join the Medical staff of the United Mine Workers Health and Welfare Fund area program in Pittsburgh, Pa.

JEROME S. PETERSON, M.D., M.P.H.,* who has been Acting Professor of Pre-

ventive Medicine and Community Health at the Long Island College of Medicine, Brooklyn, N. Y., for several months, has left for Palestine to serve with the American Friends Service Committee in the southern Palestine area near Gaza in care of refugees. Dr. Peterson is on leave from WHO for a period of 8 months for this project which is under the auspices of the United Nations.

JOHN J. PHAIR, M.D., Dr.P.H.,* who has served as Director of Health of the Louisville and Jefferson County Board of Health, (Ky.) for some years, has accepted the position as Professor of Preventive Medicine at the School of Medicine, University of Cincinnati, effective July 1, 1949. In the meantime he is serving as Acting Professor.

ADELAIDE R. ROSS,* formerly director of the department of adult health education, District of Columbia Tuberculosis Association, on February 7 became Assistant Professor of Health Education at the University of Maryland, College Park.

MAJOR ARVEY C. SANDERS,† of Crosby, Minn., is currently assigned to the Bacteriology Section of the 406th Medical General Laboratory in Tokyo, Japan, seat of the headquarters of General of the Army Douglas A. MacArthur.

DEAN THORNDIKE SAVILLE,* of New York University College of Engineering, has been appointed sanitary engineering member of the National Advisory Health Council, U. S. Public Health Service. Dean Saville has been head of the College of Engineering since 1936. He is a member of the New York State Public Health Council.

CLARENCE L. SCAMMAN, M.D.,* who recently retired as Director of the Division of Public Health, The Commonwealth Fund, New York City, has been appointed Medical Director of the Massachusetts Division, American Cancer Society, Boston, effective January 3.

DONAL SHEEHAN, M.D., formerly Director of the Commonwealth Fund, has been appointed Chairman of the Scientific Committee, New York University-Bellevue Medical Center, and Professor and Chairman of the Department of Anatomy at the New York University College of Medicine, New York City, where he will direct the overall program of teaching and research to be carried out at the center.

GLADYS SMITH, M.D., has been appointed Assistant Health Officer for the Pottawatomie County Health Department, Oklahoma.

MARY STEICHEN, M.D., M.P.H.,* of Great Neck, Long Island, N. Y., has been appointed school physician of the Great Neck public schools.

R. J. VAN DERWERKER,† Senior Sanitary Engineer, has been assigned by the U. S. Public Health Service to the Pan American Sanitary Bureau, Washington, D. C., as Chief Sanitary Engineer, succeeding DONALD L. SNOW,† who has been transferred to the National Institutes of Health.

JAMES WATT, M.D.,* of the staff of the U. S. Public Health Service, directs the Diarrheal Disease Investigations Laboratory located at the Medical School of Louisiana State University, New Orleans, where studies are under way among new-born infants. Dr. Watt serves as clinical professor of preventive medicine at Louisiana State University.

GEORGE M. WHEATLEY, M.D.,* formerly Assistant Vice-President of the Metropolitan Life Insurance Company, has been promoted to Third Vice-President and will continue in Association with DONALD B. ARMSTRONG, M.D.,* Second Vice-Presi-

* Fellow A.P.H.A.
† Member A.P.H.A.

dent in charge of the Health and Welfare Division, New York.

SAMUEL M. WISHIK, M.D.,* former assistant director of the Division of Health Services of the U. S. Children's Bureau in Washington, D. C., has been named head of the New York City Health Department's recently reorganized Bureau for Mothers and Young Children.

TOM P. WUICHET, M.B.A., who recently received his degree from Ohio State University, has joined the staff of the Ohio State Department of Health, Columbus, as Personnel Officer.

MARJORIE A. C. YOUNG, M.P.H.,† has been appointed Consultant in Education of the National Society for the Prevention of Blindness, New York. Miss Young has been Associate Professor of Health Education for the past 2 years at Springfield College, Springfield, Mass.

JOHN W. YOST, M.D., was appointed full-time Director of the Bluefield City (West Virginia) Health Department, on November 1, 1948. Dr. Yost, a practising physician and part-time Health Officer of Princeton, succeeds RICHARD C. NEIL, M.D., who served on a part-time basis since the death of D. B. LEPPER, M.D.

Deaths

ROSE K. BUTLER, R.N.,† Executive Director, Visiting Nurse Association, Holyoke, Mass. (Public Health Nursing Section).

CECIL K. CALVERT,* Superintendent of Purification Department, Indianapolis Water Co. (Engineering Section).

ARTHUR T. DAVIS, Health Commissioner of Suffolk County, New York, since the county's health department was formed in 1929, died December 17.

DANIEL W. MEAD,* of Mead and Hunt, Consulting Engineers in Madison, Wis., died October 13, 1948 (Engineering Section).

MICHAEL J. NESTOR, M.D., City Registrar and Superintendent of the Providence (Rhode Island) Health Department from 1935 until he resigned in November, died January 9 at the age of 72.

Conferences and Dates

American College of Physicians. New York, N. Y. March 28–April 1.

American Public Health Association—77th Annual Meeting. New York, N. Y. October 24–28.

American Society of Medical Technologists. Hotel Roanoke, Roanoke, Va. June 20–23.

American Water Works Association:
Arizona Section. April 1–3.
Canadian Section. April 24–27.
Indiana Section. April 20–22.
Kansas Section. April 21–22.
Montana Section. April 8–9.
New Jersey Section Outing. June 23.
New York Section. April 28–29.
Pacific Northwest Section. May 12–14.

Antibiotics Study Section of the National Institutes of Health. Second National Symposium on Recent Advances in Antibiotics Research. Washington, D. C. April 11–12.

Arizona Public Health Association. Hassayampa Hotel. Prescott, Ariz. May 12–13.

Association for Physical and Mental Rehabilitation. Third Annual Convention. Hotel New Yorker, New York, N. Y. May 18–21.

Colorado Public Health Association. Vail Hotel, Pueblo, Colo. May 23–24.

Commonwealth and Empire Health and Tuberculosis Conference. Central Hall, London, England. July 5–8.

Florida Public Health Association. George Washington Hotel. West Palm Beach, Fla. October 6–8.

Georgia Public Health Association. DeSoto Hotel, Savannah, Ga. May 2–4.

Health Officers and Public Health Nurses of New York State. Lake Placid, N. Y. June 20–23.

Illinois Public Health Association. La Salle Hotel, Chicago, Ill. April 7–8.

International Association of Milk and Food Sanitarians. Deschler-Wallick Hotel, Columbus, Ohio. October 20–22.

International Congress on Rheumatic Diseases. New York, N. Y. May 30–June 3.

Iowa Public Health Association. Des Moines, Iowa. June 2–3.

* Fellow A.P.H.A.
† Member A.P.H.A.

Kansas Public Health Association. Hotel Besse, Pittsburg, Kan. April 25–27.
Massachusetts Public Health Association. Amherst, Mass. June 15–17.
Michigan Public Health Association. Hotel Statler, Detroit, Mich. November 9–11.
Minnesota Public Health Conference. Nicollet Hotel, Minneapolis, Minn. September 30.
Missouri Public Health Association. Jefferson City, Mo. May 4–6.
National Convention of the American Red Cross. Atlantic City, N. J. June 27–30.
National Health Council. New York, N. Y. March 25.
National Society for the Prevention of Blindness. New York, N. Y. March 16–18.
National Tuberculosis Association. Detroit, Mich. Week of May 2.
National Woman's Christian Temperance Union. Diamond Jubilee. Philadelphia, Pa. August 16–24.
New Mexico Public Health Association. Nixon Hotel. Roswell, N. M. March 23–26.
Royal Sanitary Institute. Brighton, England. May 23–27.
South Carolina Public Health Association. Gloria Theater. Myrtle Beach, S. C. May 30–June 1.
Southern Branch, American Public Health Association. Baker Hotel, Dallas, Tex. April 14–16.
Tennessee Public Health Association. Andrew Jackson Hotel. Nashville, Tenn. May 2–4.
Western Branch American Public Health Association. Biltmore Hotel, Los Angeles, Calif. May 30–June 1.
West Virginia Public Health Association. Daniel Boone Hotel. Charleston, W. Va. June 2–3.

New Hammertone Finish
The International Clinical Model is now finished outside in durable glistening light gray hammertone and inside in glossy baked white enamel. Both finishes are products of modern paint chemistry — both are baked on at high temperature — both are hard and smooth, do not chip, are easy to clean and resistant to chemicals. Mechanically the Centrifuge is the same reliable product you have known for years.
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The Association acknowledges with deep appreciation its indebtedness to its Sustaining Members whose annual dues help support the Association's general program

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Association for the Aid of Crippled Children, New York, N. Y.
Borden Company, New York, N. Y.
Chlorine Institute, Inc., New York, N. Y.
Difco Laboratories, Inc., Detroit, Mich.
Diversey Corporation, Chicago, Ill.
Equitable Life Assurance Society of the United States, New York, N. Y.
John Hancock Mutual Life Insurance Company, Boston, Mass.
Hellige, Inc., Long Island City, N. Y.
Hoffman-La Roche, Inc., Nutley, N. J.
Holland-Rantos Company, Inc., New York, N. Y.
International Association of Ice Cream Manufacturers, Washington, D. C.
International Equipment Company, Boston, Mass.
Josam Manufacturing Company, Cleveland, Ohio
Lederle Laboratories Division, American Cyanamid Co., New York, N. Y.
Liberty Mutual Insurance Company, Boston, Mass.
Life Insurance Co. of Virginia, Richmond, Va.
Macmillan Company, New York, N. Y.
George W. Merck, Rahway, N. J.
Metropolitan Life Insurance Company, New York, N. Y.
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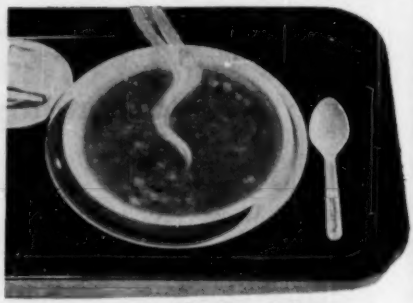

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[1] McLester, J. S.: Nutrition and Diet in Health and Disease, ed. 4, Philadelphia and London, W. B. Saunders Company, 1943.

[2] Kunde, M. M.: The Role of Hormones in the Treatment of Obesity, Ann. Int. Med. 28:971 (May) 1948.

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